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ABSTRACT

This research project studied the effects of an experimental teacher training program designed to help teachers nurture creativity in their pupils during the initial year of a city school desegregation plan. A pretest-posttest control group design was employed. One-half of the teachers participated in an experimental in-service program throughout the school year while one-half did not. The sample group was composed of all fifth and sixth-grade students and their teachers in the Harrisburgh School District. The fifth grade contained 39 teachers and 945 pupils and the sixth grade contained 39 teachers and 887 pupils. The Pennsylvania Department of Education designed the nine 90-minute workshop program into three parts a) an introduction to psychosocial issues involved in pupil creativity, b) a review of the factors of pupil creativity which are under the teachers' control, and c) the presentation of practical alternatives which are available to teachers. Teachers and pupils were tested in the fall of 1970 and again in the spring of 1971. The in-service program was well-received by the teachers. All but one teacher involved in the program experimented with the ideas and material presented. A 33-item bibliography is included. The appendixed present references, weekly rating forms, class means, summated teaching data, final evaluation of progress, and teachers' comments. (Related Document SP 005 640 is a condensation of this research study.) (MJM)

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Improvement of Pupil Creativity Via Teacher Training: Final Report

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I. Problem

A. Statement

The teacher-child relationship is the core of the educational experience. To maximize this experience the communication lines between the teacher and the child should be open and flexible. This study will assess the effect on the teachers and their pupils of a teacher-training experience concerned with teacher-pupil interaction.

B. Rationale

As stated at the 1970 White House Conference on Children, "The child is the insurance of American Society. We must either be prepared to pay the premiums today so we might reap future benefits, or forfeit the payments today and bemoan our griefs tomorrow."[1] The recent history of civilization is a history of scientific progress. Within the past century the physical sciences have surged forward while the social sciences have lagged behind. While man has initiated the settlement of the moon, his cities have become social dynamite. "Our technological competence has revolutionized our industrial and business capabilities; but it has also dehumanized us--our environment, our institutions, our homes, and our schools."[2] Social realities will judge this era as either the penultimate phase or merely a transitional phase of history. It is mandatory that we strive to equip our pupils beyond the level of mediocrity and half-truths.

If the pupils of today approach the future with the knowledge of today but without the tools to create their own knowledge, we may well be judged for having created a tragedy. As Lowenfeld (1961) said, "It is one of the foremost tasks of education to develop all potential abilities in

man and make them function. This should be true not only for the intellect but also for the unfolding of man's creative potentialities."[3]

That these potential abilities do not simply blossom is obvious. As Sir Cyril Burt noted, "Heredity at best can provide only the seed; the seed must be planted in suitable soil, tended, watered, and cultivated before it can mature and blossom."[4] The principal environment designed by a society to develop the child's potential is the educational system. The child reflects the school experience. As Coleman (1966) found concerning the child's future expectation, ". . . the direction such an attitude takes may be associated with the pupil's school experience as well as his experience in the larger community."[5]

The degree to which the child's potential will be developed is directly related to the quality of the educational experience. Campbell (1971) defined the indicators of quality education as:

> . . . the notion that a person should respect himself, that he should understand and appreciate his neighbor, he should be functionally literate in both words and numbers, he should be a constructive and positive citizen, he should appreciate and understand human accomplishments in the major areas of human endeavor such as the sciences, arts and humanities. He should be committed to a continuing vocational development. Finally, through a creative approach to human dilemmas, through positive acceptance of the necessity for continuous learning, and through tolerance of continuing change and uncertainty, he should be able to live in a world which is not going to be and cannot be the same two years from now as it is today.[6]

One must wonder whether the specific existing system is appropriate to a full and rich development. DeBono (1969) contended that the contemporary American Educational System produced a type of thinking based on the idea that one must not be wrong, move only in a planned direction, and consider only the relevant. He felt that our system tends to build up large, established patterns that lead not to quality education but, rather, away from it.

Vaughn (1969) took a more extreme position:

> One thing made clear by these random and often unrelated insights is that our traditional programs in education are effective instruments of our authoritarian society and antithetical to the development of creativity, and that they have been effective and efficient in producing quiet, orderly, and courteous children, rather than flexible, sensitive, and courageous individuals.[7]

> If, indeed, our present need in education is to increase the quality of a student's knowledge, then the process by which a student comes to know becomes as important as the amount of knowledge gained. The emphasis in the educational process should be on the development of a mature, sensitive, and responsible individual.[8]

She concluded,

> . . . it is necessary for young people to maintain an almost 'naive' attitude to problems so that preestablished customs and norms do not remain as fixed and unchanging responses to the emerging needs of mankind. The teacher and the school in America best would serve in this development of students' attitudes, sensitivity, and character indirectly by providing an atmosphere of receptive listening, rather than the present insistence on authority.[9]

The school may be called many things and written into an infinite variety of syllogisms. Yet at the end it all comes down to children and a teacher. It has been pointed out that, "There are three main factors that influence creativity and the learning process: Culture, Environment, and Communication."[10] Obviously the teacher has little control over the culture from which the child comes. The teacher can and does exert a powerful influence on the environment in which children spend many of their waking hours during the school year. "Similarly, the teacher is the instructional medium--both the medium and the message--the link between the child and the act of learning."[11] Given this position as the instructional medium and controller of environment, is it unreasonable to say that the teacher must be a potent factor in encouraging or inhibiting a child's cognitive and affective development?

The teacher is the true catalyst in the classroom. He or she can offer, or withhold, opportunity, motivation and reinforcement. The fact of intention is of no import. The fact of effect is of total import. The sum of all the acts of all teachers looms as a crucial element of causality when one seeks to explain the quality of education.

> We have placed this awesome burden upon our teachers, yet we have omitted from their training the more important aspect of the creative and learning process: Communication Skills. Before any learning or creativity can take place in the classroom--even with the most gifted and academically-qualified teacher--the latter must be able to strike those common human chords that must exist between the teacher and the child.[12]

The following two statements from the 1970 White House Conference on Children best express the intent of this study:

> Communication must be established between the child and teacher through participation, discussion, relationships, trust, ideas, feelings, understanding, but regretfully these factors are often absent in countless numbers of American classrooms. As a result, creativity and learning are diminished. The time has now come for school systems to rectify this.[13]

> We believe that it is self-evident that the adult must make the first attempt at changing and modifying his behavior, even though we observe regretfully that in current practice this burden is most always placed on the child.[14]

Those lines of communication which relate the teacher to the child must be established, and it is the teacher who must take the initial step toward their establishment. As Campbell (1971) stated in reference to the teacher's responsibility, ". . . if you are going to make any difference, you will be the ones who develop and implement the difference-making ideas."[15]

II. Related Literature

Research in education supports the conclusion that learning operates within the constraints of the individual's environment. Anderson (1959) reviewing a collection of articles noted that all of the authors (except Guilford) see the environment functioning either as a facilitator or restrictor of pupil creativity. The classroom climate is a major facet of the pupil's environment.

Climate for Individuality (1965) reported that this climate must offer rich stimulation, responsible freedom, support, success, commitment and self-insight. Rogers (1959) emphasized that psychological safety is a requisite for creativity and learning. This safety comes about when the system accepts the individual as worthy, provides a climate without external evaluation and understands empathically. Combs (1962) and later Parnes (1967) pointed out that we must have the right environment so that the individual is not reluctant to risk himself.

Stein (1962) stated:

> A culture fosters creativity to the extent that it encourages openness to internal and external experience. Orientations that result in rigid inner personal boundaries and that lead to passivity and the expectation that ready-made solutions are available for new problems hamper creativity. Creativity depends on autonomy and independent inquiry.[16]

Anderson (1961) explained:

> The children encounter a complicated system of environmental demands, tabus, socializing and acculturing processes. These early requirements for conformity are climaxed by a school curriculum which also is mostly closed system learning and from which there is no escape.[17]

The closed system honors events and thus results in a person-to-thing relationship. The open system, however, stresses learning through the interaction of the involved individuals, resulting in a person-to-person relationship. The person to thing relationship has the obvious

result of programming the learner rather than providing him with a chance to develop his own solution. Anderson (1961) said that the open system of education allows the pupil to go beyond himself via interaction while the closed system inhibits the scope of pupil behavior. The open system is most familiar in the case of the seminar situation. It has the quality of interpersonal relationships which potentially allow for an I-Thou. The closed system is more impersonal with an authority figure who has "right" answers or a body of knowledge which the pupil seeks to attain. As Anderson stated, it is through the closed system that the society's heritage and history are passed on; so the system has a certain obvious merit. Unfortunately, the capacity to recall norms, values and facts becomes over-rewarded in this system. Anderson differentiated the two by the relationship engendered in each.

Our interpretation of Anderson's (1959) open vs. closed systems is not a question of permissiveness. It is instead a question of communication and the use made of the learning situation. Anderson (1959) also argued that persons respond to persons but not neutrally. Lack of respect for a person cannot facilitate his self-esteem. To treat a person as a thing is to obstruct his growth. Anderson (1959) stated, "The open system is thus the ideal, propitious environment for creativity, and anything in the environment that tends to close the system makes the environment unpropitious for creativity."[18] Anderson (1959) noted, "But the open system means that to the extent of its openness the persons in one's meaningful environment are permitting or even encouraging him to be himself and to make adventures into the unknown. . ."[19]

Anderson (1959) argued that in the development of a child, the environment is crucial; however, one must particularly look at the people who

are part of that environment, ". . . the significant persons in the environment as well as to the individual himself."[20]

Anderson (1961) stated:

> Creativity as an unfolding or flowing of individual differences presupposes an individual in a propitious environment. Creativity is not found in the person, as such. We know that in certain situations one is stimulated and feels more free to be himself--in other situations he feels threatened, inhibited, and becomes cautious or even afraid to express his ideas. Life is a process of interacting; it is creative to the extent that the interacting is harmonious. Persons in the environment can facilitate or retard the interacting. To the extent that this interacting is threatening or lacking in harmony, one becomes defensive and to this extent lacking in the expression of originality.[21]

Combs (1962) stated that the classroom must encourage interaction. Combs (1962) also emphasized communication as crucial. It must not be one-way nor limited to given topics. "Creativity depends on problem-solving rather than static answer-finding."[22]

The teacher is the key to the open classroom as he or she sets the climate by rewards, authority, etc. Lansing (1956) found a significant, positive relationship of the teacher as a motivator to 5th grade children's performance. At the same time, he noted that it was not possible for him to separate the effect of the classroom teacher from the classroom climate. He felt that the classroom teacher has a definite, potent influence on the classroom climate. In their studies of the role of the teacher, Amidon and Flanders (1963) found that pupil expectations of who and what the teacher is color all aspects of classroom behavior. Once established, this classroom climate is fairly constant. They go on to review the findings of their own and other research. Summarized, this review tells us that the teacher, more than any other individual, sets the climate of the class. Hallman (1967) felt that creativity can easily be inhibited and that the classroom teacher can sustain it. Marks of the creative classroom are self-initiated learning, nonauthoritarian environment, overlearning, diver-

gent problem-solving, deferred teacher intervention and pupil self-evaluation. He discussed the facts that the pupils must learn to be sensitive and the teacher must be there to assist the pupil in coping.

Hutchinson (1967) utilized 417 grade 7 pupils to find that the traditional classroom is teacher-centered, thereby limiting divergent behavior. Modified programs, using pupils as thinkers not learners, increase productive and evaluative thought. Hutchinson (1963) found that highly creative pupils did not have much opportunity to use their creative potential in the typical classroom. He showed that the teacher was the controlling factor and that the major questions were how she perceived the pupils and to whom she geared the instruction. Skigaki (1970) studied the effects of teacher attributes on creative pupil learning. In her sample, the teachers were preoccupied with conveying lessons (things) and failed to use divergent methods but relied on fact-stating. Her results indicated that the teacher's actions were not conducive to pupil inquiry. Torrance (1963) commented that much of the divergent problem-solving behavior of children is not viewed as acceptable behavior. Thus, the teacher must redefine her concepts and values if she wishes to recognize and nurture pupil creativity. Creative thinking abilities are of little use when the teacher insists that children memorize facts as stated by an authority. Teachers can and should be catalysts for pupil creativity. He listed common blocks to classroom creativity: (1) children are held back from learning by mass curricula, (2) discipline is overvalued to the detriment of spontaneity, (3) teacher status and security are over-protected, (4) peer orientation and success hurt self-exploration, (5) divergency is confused with delinquency and (6) work is too sharply divided from play.

Christie (1970) reviewed research on the school environment. He found that the most fruitful approach is not in terms of the teacher's

person but rather her methods. Instructional methods which optimize children's abilities are particularly beneficial to highly creative children. To Christie, the environment in the classes of unresponsive authoritarian teachers is bad. Anderson (1961) emphasized:

> The use of power over a student is first an expression of lack of respect, or of confidence, in the person over whom it is used. It in turn becomes a source of anxiety in the student, an inciter of defenses, and hence a degrading of the quality of behavior of which the student is capable. The predicted outcome of this cultural domination is loss of 'motivation' and revolt, or conformity, submission and psychic atrophy.[23]

Combs (1962) stated:

> . . . conformity and creativity are essentially antithetical . . . what produces one tends to destroy the other. Conformity calls for restriction, order, direction, control; creativity for freedom, experimentation, expression, and facilitation.[24]

Lansing (1956) found dominative or authoritarian leadership, as opposed to democratic, is not conducive to learning and it produces dependency upon the teacher. In Miller's (1964) study of 7th and 8th grade pupils, responsive teaching was pitted against highly prescriptive or directive teaching. The pupils under responsive teaching expressed significantly more positive attitudes toward the learning experience while achieving just as well as pupils under directive teaching. Flanders' (1965) conclusion to his extensive study of teaching practices was that high pupil achievement was attained where teacher patterns were flexible, neither direct nor indirect.

Guilford (1962) pointed out that change in teacher attitude would be a big step forward. "The sad fact is that teachers generally do not prefer the more creative students."[25] Hobson and Feldhusen (1971) conducted a special workshop for 5th and 7th graders which emphasized freedom and playfulness. They showed video tapes of their sessions to 13 teachers. All of the teachers were supportive of the program's major

themes. Half of the teachers felt that pupils would learn just as much or more in a free and open classroom. However, only four of the 13 were inclined to try it in their own classrooms. The rest felt that it was not applicable nor practical. Thus, the attitude of the teacher is the first step in the change process.

> An active learning process involving various levels of the person is required. To make this change effort requires more commitment, risk taking and help from others than is true in the other fields of practice. Consequently, more apathy or resistance can be expected, and more support is needed from peers and supervisors. Further, more guidance is needed from consultants, trainers, and demonstrators; and experimental opportunities are essential in the school setting.[26]

Therefore, this study examined the effects of an experimental program designed to serve as a change agent for middle-school teachers.

III. Procedure

A. Objectives

The objectives of this study were:

To assess the effect of teacher training upon pupil creative ability, creative attitude, self-concept, tolerance, citizenship, vocational maturity, intellectual achievement, preparation for change, attitude toward school and appreciation of human accomplishment.

To assess the effect of the training program upon the teachers' desire for an open-democratic classroom atmosphere.

To assess the relationship between the teachers' desire for an open-democratic classroom atmosphere and class mean gain in pupil variables.

B. Design of Research

The primary hypothesis to be tested was that there would be significant differences between the control and experimental groups on the pupil variables mandated by the Pennsylvania State Board of Education Committee on Quality Education. A secondary hypothesis to be tested was that there would be a significant relationship between teacher attitude and pupil gains.

The Pretest-Posttest Control Group Design (Stanley and Campbell, 1963) was employed. This design takes this form:

R	O_1	X	O_2	Experimental Group
R	O_3		O_4	Control Group

Where the symbol R refers to the random assignment of subjects, the symbol O refers to testing, and the symbol X refers to an experimental treatment. The vertical columns refer to events occurring at the same time and the horizontal rows refer to a process over time. As applied to this study, the design called for random assignment of subjects to either control or experimental groups. Both groups received pretesting and posttesting but one group received an experimental treatment during the seven months between testing.

This design was selected because it seemed to offer the most control for a lengthy project conducted in real life conditions. The major feature of this design is that a randomly selected control group completes the same events as the experimental group except the experimental treatment. The effects of external events occurring between test sessions, testing, instrumentation, etc., should operate equally on $O_3 - O_4$ as on $O_1 - O_2$.

The major drawback of this design as noted by Stanley and Campbell (1963) is in the interaction of pretesting and treatment. This refers to the tendency of the pretest to sensitize the subjects to the events presented in the experimental treatment. In this study, the testing of the primary hypothesis was conducted directly with pupils, while the experimental treatment was conducted directly with teachers. While this procedure would not eliminate completely the sensitization effects of the pretest, it was hoped that these effects would be diminished considerably.

C. Sample

The sample was comprised of all the 5th and 6th grade teachers and their pupils in the Harrisburg School District. In the 5th grade, there were 39 teachers and 945 pupils. In the 6th grade, there were 39 teachers and 887 pupils.

The teachers were randomly assigned before the fall testing by grade level to either the experimental or control group. Because the odd number of teachers prevented division of groups into equal numbers of subjects within grade level, a dummy number was added to each grade level for the purposes of randomization. At the 5th grade level, 19 teachers were assigned to the experimental group and 20 to the control group. At the 6th grade level, 20 teachers were assigned to the experimental group and 19 to the control group. As a result of the teacher assignment, the 5th grade

experimental group contained 454 pupils and the control group contained 478 pupils. The 6th grade experimental group contained 448 pupils and the control group contained 442 pupils. In Table 1, the teaching experience of the teachers is described. While the 6th grade control and experimental groups appear to be about even, the 5th grade experimental group appears to have less experience than the control group.

Table 1

Teachers' Teaching Experience

	5th Grade		6th Grade	
Years of Experience	Experimental	Control	Experimental	Control
first year	5	3	9	6
1	4	2	3	0
2	4	3	1	0
3-5	3	1	3	6
6-10	0	4	1	3
11-15	0	1	2	1
16-20	0	1	0	1
20 plus	3	5	1	2

In Table 2, the sex of the teachers by grade level is described. There is no apparent discrepancy between the experimental and control groups at either grade level.

Table 2

Teachers' Sex

	5th Grade		6th Grade	
Sex	Experimental	Control	Experimental	Control
Male	6	8	8	10
Female	13	12	12	9

The Harrisburg School District was selected as a result of the district's reorganization. In the past, the district had been organized in the traditional manner of neighborhood elementary schools. However, to provide equal opportunity for all children, the district has been reorganized with computer assignment rather than geographic location as the basis for school membership. Previously the elementary schools contained a kindergarten-through-6th-grade program. Each school now houses only two or four grade levels and has a student body representing all geographic sections of the city. This study was conducted in the eight schools containing grades 3 through 6. Each class has 60 per cent Negro and 40 per cent Caucasian pupils who were randomly assigned to that class as compared to all other classes in the district. The teachers were also randomly assigned to buildings. This system of reorganization seemed to lend the city to research in a real situation with many of the benefits of the laboratory situation.

Harrisburg City School District has 7,688 pupils in the grade levels kindergarten through 6th grade. The district has 19 per cent of the student body rated as disadvantaged, according to Title I, ESEA criteria, which is relatively high for a district in the Commonwealth.

At the same time, the district's market value per weighted average daily membership for the 1969-70 school year was $18,348 which is relatively high for the Commonwealth. The high Title I percentage and market value indicate a district with wealth owned by nonresidential property. Thus, one could depict Harrisburg as a small city district with residents predominantly of lower socioeconomic status.

D. Experimental In-service Program

The program was designed by a project staff composed of professional educators from the Pennsylvania Department of Education. The project staff attended all of the program sessions plus private staff meetings held throughout the duration of the project. The members of this staff were: Paul B. Campbell, Director of the Office of Research and Statistics; Clyde M. McGeary, state fine arts adviser; David W. Miller, state language arts adviser; Patricia Mull, elementary education; Thomas McGuiness, English; James Lewis, vocational education. Special consultants on the project were: Kenneth Beittel of the Pennsylvania State University, Richard Donald of Bloomsburg State College, Margaret Grandovic of Lehigh University, Ronald Munro of Eagleville Rehabilitation Center, Henry Ray of Lehigh University, and Sydney B. Simon of the University of Massachusetts.

In his monograph, A Study on the Continuing Education of Teachers, Louis J. Rubin stated that, "In-service education is virtually useless if the objectives of the training program are not valued, and rewarded--by the power structure of the school."[27] With this in mind we sought and received a commitment from the school district administration which stated that they were firmly behind our project. A member of the superintendency team handled correspondence between the teachers and the project staff.

This was the first tangible evidence for the teachers that the district was aware of their efforts. Next the district released the teachers for ten 90-minute sessions during the school day, not after work hours. Thus, the priority of the project was demonstrated to the teachers. It is worth noting that the actual released time was a good deal greater than 90 minutes per session as the district gave additional time for travel to the project school.

Dr. Rubin's monograph served as a model for the project. The first point made by Dr. Rubin was:

> The formula for teaching competence involves three primary ingredients: knowledge of the ideas which are to be taught, a mastery of teaching tactics which are most often successful, and a valid system of beliefs about what the child is like and what he can do.[28]

Transferring this general case to the specific case of a creativity program, we designed a program composed of three parts: (1) an introduction to psychosocial issues involved in pupil creativity, (2) a review of the factors of pupil creativity which are under the control of the teacher, and (3) a presentation of practical alternatives which are available to the teacher. It was felt that parts (1) and (2) would effectively incorporate knowledge and beliefs, while part (3) would review teaching tactics.

In trying to decide exactly what content and mode of presentation to utilize, we were guided by Dr. Rubin's advice that a program must be realistic. Our program had to be economically feasible for a school district to implement on its own. It had to be capable of involving large numbers of teachers. It had to be compact enough to not require a full-time administrator. Finally, it had to have sufficient flexibility to be moved spatially among school districts and temporally within a school district.

There was a temptation to restrict the content to a very non-theoretical level. Such an approach would have met with enthusiasm from the teachers but would lose generalizability. Referring to the necessity of incorporating related theoretical issues, Rubin (1969) said, "In this way the practical benefits of the program are extended and the chances of permanent behavioral change are increased."[29] Our decision was to balance our content between theory and practice.

The content of the ten sessions was chosen to bear on the issues inherent in pupil creativity, but pupil creativity itself was not introduced until the final two sessions. This way a useless clash with any of the teachers was avoided. The first session dealt with value training. How do we teach value? What is a value? What methods can be employed to study values without indoctrination?

The second session was child development. How do we develop an individual? What processes are at work and how do we use them?

The third and fourth sessions dealt with teacher-pupil interaction. What elements make up the interaction, and what can we do to study and improve them?

The fifth session dealt with perception. How well do we perceive? How can we increase pupil perception? How can the pupil benefit from his perceptions?

The sixth and seventh sessions dealt with communication. The elements of communication were introduced; then techniques such as brainstorming and Roger's Exercise were employed. These techniques were accompanied by instruction on how to use them within the school setting.

The eighth session dealt with the classroom environment. The physical and nonphysical environments were discussed. Projects from other school districts were introduced and studied.

The ninth and tenth sessions were designed to weld together the concepts of the first eight sessions and focus directly on the question of pupil creativity. These sessions included project reports from the teachers.

One point that was not raised by Dr. Rubin was the necessity for useful materials which the teacher can take away for future reference. The project incorporated such software into every session. Books, papers and instructional materials were utilized. (For a complete listing, see Appendix A.) In addition a newspaper The Great Pumkin was written for each session.

The Great Pumkin presented a summary of the previous session, highlights of the present session, information relevant to pupil creativity, short project position papers and feedback. The use of feedback was thought to be particularly important. The last page of each Pumkin was a form for the teachers to use in rating that session (Appendix B). The results of this rating were printed on the front page of the next Pumkin. Also, on the feedback sheet was space for written comments which were also printed in the Pumkin and used by the staff to make changes. One such change was the movement from large to small groups for sessions. Another change was in the format of the feedback sheet itself.

E. Instrumentation

All of the 5th and 6th grade pupils and teachers in the Harrisburg City School District were tested in the fall of 1970 and again in the spring of 1971. The teachers completed the Kerlinger Education Scale and the Rokeach Dogmatism Scale.

The 5th grade pupils completed the Pennsylvania Pupil Questionnaire which included the Stanford Achievement Test and the Fanani Hidden Figures

Test. The 6th grade pupils completed three subscales of the Pennsylvania Pupil Questionnaire.

1. Pennsylvania Pupil Questionnaire

The Pennsylvania Pupil Questionnaire consists of nine measures. Six of these measures were developed by the Pennsylvania Department of Education. The remaining three measures were the Stanford Achievement Test, a modified Coopersmith Self-Esteem Inventory and Crite's Vocational Development Inventory. This battery has been developed and used by the Pennsylvania Educational Quality Assessment Project.

This package has been designed to assess those pupil variables defined by the Commonwealth as indicative of quality education. The variables under consideration are creativity, self-concept, tolerance, citizenship, vocational development, intellectual achievement, preparation for change, attitude toward school and appreciation of human accomplishment.

The subscales of the Pennsylvania Pupil Questionnaire have been under study for several years by the Bureau of Educational Research, Pennsylvania Department of Education. The edition employed in the Harrisburg study was based on the results of validity and reliability studies as well as factor and item analyses.

2. Hidden Figures Test (Form B)

The Hidden Figures Test was designed to measure an aspect of convergency, i.e., the ability to organize one's attention for rapid perception of known correct solutions. For each test item the subject was asked to find one of five given basic figures, or Gestalten, hidden in a more complex field or configuration. Solution required suppression of the Gestalt field in order to perceive the Gestalt within it. To do this, the subject must destroy a given Gestalt in order to find another. The test yielded one score, the total number of correct perceptions.

The HFT contains five basic figures, one of which is concealed in each of the given configurations. However, in the HFT each basic figure is a simple, straight-line geometric form, with close figural and size relationships to one another. This closer conformation was developed to require more critical Gestalt judgment in identifying the basic figures.

To further reduce the chance factor and to increase the need for clarity of Gestalt perception, two additional methods of masking the basic figures were developed by Fanani. In each of the first 30 configurations, a more obvious but inaccurate form of a different basic figure was placed within the field along with the correct basic figure. In each of the other 30 configurations, a three-dimensional or textural quality is utilized to further mask the basic figure.

The sample for Fanani's (1964) validity study consisted of two groups of undergraduate students enrolled in the Pennsylvania State University during the spring semester of 1961. Fanani's major conclusions are summarized as follows:

1. Each criterion test (including the HFT) achieved highly satisfactory levels of validity and reliability.

2. Each criterion test meets all the accepted standards achievable in this study for administering, scoring and evaluating a useful measuring instrument. The principal gauge not yet met is the standardization of norms.

3. The Hidden Figures Test may be made available in two different forms, for measuring art or nonart populations. One form of 37 items discriminates more highly among naive art subjects (Form B). Another form of 34 items discriminates more highly among relatively sophisticated art subjects (Form A).

4. Each criterion test contains one or more variables which measure dimensions significantly differentiated from the dimensions measured by the standardized aptitude and achievement tests.

5. The noncriterion nonverbal tests of creativity are relatively independent of the verbal tests of creativity, and vice versa.

Rookey (1970b) in cooperation with Fanani studied the interrelationship of five creativity measures using 5th grade pupils as subjects. The measures employed were the Fanani Hidden Figures Test (Form B), the Torrance Test of Creativity (nonverbal form), the Pennsylvania Assessment of Creative Tendency, the Greenberger Student Profile and the Greenberger Curiosity Checklist.

The major finding of this study was a significant relationship between the Torrance test and the HFT. Also, the HFT was found to pose no substantial difficulty for 5th grade pupils. Thus, it would seem that the HFT (Form B) is appropriate for the 5th grade level and is a measure of creative ability in the same sense as the Torrance tests (nonverbal form).

3. Education Scale VI

The several attitude scales, as Kerlinger (1970) describes them, have been developed from a series of studies on attitude toward education. The scales are apparently valid in both the logical and empirical senses of the word (Kerlinger and Kaya, 1959 and Kerlinger, 1970). The reliability of the scales is satisfactory for group use. For individual prediction, however, reliability of ES-I is not so satisfactory. As far as ease of administration is concerned, the scale is easy to administer and to score.

As far as can be determined by Kerlinger's research to date, the attempt to identify and measure the basic dimensions of educational attitudes has been quite successful. Through the use of Q-methodology the basic traits forming two opposing attitudes toward education were identified. The two attitudes or factors were A: Progressivism and B: Traditionalism. The reasoning behind using factor-saturated items was as follows: A person who is strongly progressive should, in the case of the Likert scale, put high values on A or progressive items and a strong traditionalist should similarly, put high values in B items.

As far as logical validity is concerned, both ES-I and ES-II are valid, with the independence-of-factors edge going to ES-I (Kerlinger, 1970). Both scales seem also to have predictive validity; both differentiated sharply between the three major subgroups of his study, undergraduate, graduate and nonuniversity people.

ES-VI is a 46-item summated-rating type scale (like ES-I) that has 23 A progressivism and 23 B traditionalism items. The items were selected by Kerlinger from a pool of some 100 items either used in earlier research or constructed for inclusion in ES-VI. ES-VI has been administered by Kerlinger to a number of samples of teachers and graduate students of education in New York, North Carolina and Texas. It seems clear that the reliability weakness of ES-I has been repaired with ES-VI: The r_{tt}'s have been consistently in the low and middle .80's for both A and B measures.

ES-VI has been extensively factor analyzed, using first-order principal axes factor analysis and orthogonal (Varimax and Quartimax) and oblique (Promax) rotations. The rotated factor matrix shows that the A and B factors--identified as ESA and ESB by the items--separate into two distinct second-order factors. Study of the items on each of the first-order factors indicated that second-order factors ESA and ESB seemed to express progressive and traditional notions of education.

No investigations of predictive validity--for example, studies using the "known-group" method--have been done with ES-VI. It is assumed that the results obtained with ES-I would obtain with the psychometrically superior scale ES-VI (Kerlinger and Kaya, 1959).

4. The Dogmatism Scale

The primary purpose of this scale is to measure individual differences in openness or closedness of belief systems. Because of the way

Rokeach (1960) defined open and closed, the scale should also serve to measure general authoritarianism and general intolerance. The procedure in constructing the Dogmatism Scale was essentially deductive. They scrutinized the various defining characteristics of open and closed systems. Then Rokeach tried to construct statements designed to tap these characteristics.

The basic assumption was that if a person strongly agrees with such statements it would indicate that he possesses one extreme of the particular characteristic being tapped, and if he strongly disagrees, he possesses the opposite extreme. Insofar as possible, they looked for statements that express ideas familiar to the average person in his everyday life. Above all, each statement in the scale had to be designed to transcend specific ideological positions in order to penetrate to the formal and structural characteristics of all positions. Persons adhering dogmatically to such diverse viewpoints as capitalism and communism, Catholicism and anti-Catholicism, should all score together at one end of the continuum, and should all score in a direction opposite to others having equally diverse yet undogmatic viewpoints.

The Dogmatism Scale went through five editions. A total of 89 items were tried out in the initial scale and in four successive revisions. The aim of these revisions was to take advantage of continuing refinements in our theoretical formulations and to increase reliability.

The final Form E contains 40 items. For all statements, agree is scored as closed and disagree as open. The total score on the Dogmatism Scale is the sum of scores obtained on all items.

It is an artifact of the scoring format that a high score is an index of attitude against dogmatism. In this study we shall refer to this feeling of opposition to dogmatism as "anti-dogmatism."

F. Statistical Analyses

The relationship between teacher and pupil variables was investigated by means of correlational techniques. The effect of the teacher training program upon teacher and pupil variables was investigated by means of analysis of covariance. The .05 level of significance was deemed acceptable.

IV. Results

A. Sample

Sixty-six of the original 78 teachers completed the study. This attrition was due to the necessary deletion from the study of all teachers who were separated from their classes because of transfer, moving or marriage. Of these 12 teachers, four experimentals and two controls were lost from the 6th grade sample and two experimentals and four controls were lost from the 5th grade. Table 3 depicts these changes which occurred between the pretest and the posttest.

Table 3

Teacher Sample

	Pretest		Posttest	
	Experimental	Control	Experimental	Control
5th Grade	19	20	17	16
6th Grade	20	19	16	17

The pretest was administered to 1,832 pupils. Due to teacher loss, 262 pupils were deleted from the study. For various other reasons, usually pupil transfer, an additional 219 pupils were deleted on an individual basis. These changes are depicted in Table 4.

Table 4

Pupil Sample

	Pretest		Posttest	
	Experimental	Control	Experimental	Control
5th Grade	454	478	370	344
6th Grade	448	442	303	324

B. 6th Grade Pupils

1. Goal I

The Analysis of Covariance for Goal I, Self-Concept as a Learner, yielded a nonsignificant F. This means that when the posttest score was adjusted for the pupils' ability, as demonstrated in the fall pretest, there was no significant difference between the treatment and control groups. This analysis is shown in Table 5.

Table 5

Analysis of Covariance on 6th Grade Pupils for Goal I

Source	df	Sums of Squares	Mean Square	F
Treatment	1	13.29	13.29	0.2814
Within	629	29700.76	47.22	
Total	630	29714.05		

Common error regression coefficient: B (X1, Y) = 0.621

It can be seen in Table 6 that the means of both the experimental and control groups increased over the period of the study.

Table 6

6th Grade Pupil Mean Scores for Goal I

	Pretest	Posttest
Experimental	33.42	33.66
Control	33.23	34.06
Total	33.33	33.87

The overall average for school mean scores was 33.19 with a standard deviation of 2.45 on the pretest and 33.39 with a standard deviation of 1.12 on the posttest. However, there was considerable variation in mean scores between schools. (See Table 7.)

Table 7

6th Grade School Mean Scores for Goal I

School	Pretest	Posttest	Gain
1	34.07	35.02	0.95
2	33.90	33.82	-0.08
3	33.70	32.02	-1.68
4	33.39	33.57	0.18
5	33.11	34.24	1.13
6	32.25	34.55	2.15
7	32.24	33.66	1.42
8	31.86	32.26	0.40

The overall mean gain by classes within schools was 0.73; however, the variation by classes was considerable. The gain scores ranged from a loss of 4.76 to a gain of 5.00 points. The control teachers ranged from a loss of 4.76 to a gain of 5.00 points with 11 out of 17 classes displaying a gain. The experimental teachers showed less variation ranging from a loss of 2.1 to a gain of 3.2 with 11 out of 16 classes displaying a gain. The complete class mean data can be seen in Appendices C-1 and C-2.

2. Goal II

The Analysis of Covariance for Goal II, Understanding of Others, yielded a nonsignificant F. Thus, there was no significant difference between the treatment and control groups. This finding is displayed in Table 8.

Table 8

Analysis of Covariance on 6th Grade Pupils for Goal II

Source	df	Sums of Squares	Mean Square	F
Treatment	1	17.58	17.58	0.9098
Within	629	12152.26	19.32	
Total	630	12169.84		

Common error regression coefficient: B (X1, Y) = 0.111

An increase in mean scores for both the experimental and control groups is shown in Table 9.

Table 9

6th Grade Pupil Mean Scores for Goal II

	Pretest	Posttest
Experimental	32.09	33.04
Control	31.77	33.34
Total	31.92	33.19

The overall average for school mean scores on Goal II was 31.79 with a standard deviation of 2.13 on the pretest and 33.02 with a standard deviation of 0.37 on the posttest. (See Table 10.) The variation of scores from school to school was largely affected by growth in the lower scoring schools during the period between tests.

Table 10

School Mean Scores for Goal II

School	Pretest	Posttest	Gain
1	32.92	33.30	0.38
2	32.78	32.39	-0.39
3	32.46	32.97	0.51
4	32.27	33.15	0.88
5	31.52	33.34	1.82
6	30.90	32.53	1.63
7	30.81	33.30	2.49
8	29.71	33.18	3.47

The overall mean gain for Goal II by classes was 0.73. There was little variation within the group as a whole. The existence of a small number of classes that varied a great deal accounts for nearly all of the existing variance. The control classes ranged from a loss of 2.80 to a gain of 6.00 points with 14 out of 17 classes displaying gains. The experimental classes ranged from a loss of 1.80 points to a gain of 4.50 points with 14 out of 16 classes displaying gains. As with Goal I, the variation among experimental classes was noticeably restricted in contrast with the control classes.

3. Goal VII

The analysis of covariance for Goal VII, Creative Attitude, resulted in a nonsignificant F between the experimental and control groups. The data is reported in Table 11 below.

Table 11

Analysis of Covariance on 6th Grade Pupils for Goal VII

Source	df	Sums of Squares	Mean Square	F
Treatment	1	23.74	23.74	0.0815
Within	629	183071.98	291.05	
Total	630	183095.72		

Common error regression coefficient: B (X1, Y) = 0.649

As shown in Table 12, the experimental and control pupils were very similar and both increased over the period of the study.

Table 12

6th Grade Pupil Mean Scores for Goal VII

	Pretest	Posttest
Experimental	158.90	162.11
Control	158.02	161.93
Total	158.44	162.02

The overall average for school mean scores was 157.32 with a standard deviation of 4.64 on the pretest and 161.86 with a standard deviation of 3.45 on the posttest. There was not a great deal of actual difference between the experimental and control groups. One teacher in the control group achieved a gain of 14.13 points which greatly affected the total control group. The school means ranged from 152.09 to 161.96 on the pretest and from 155.79 to 166.81 on the posttest. It is interesting to note, as shown in Table 13, that the schools that pretested low stayed low. It is also interesting that the top school on the pretests had a large increase.

Table 13

School Mean Scores on Goal VII

School	Pretest	Posttest	Gain
1	161.96	166.81	4.85
2	161.30	162.81	1.51
3	161.10	161.76	0.66
4	157.40	164.43	7.03
5	156.67	163.99	7.32
6	156.40	159.54	3.14
7	155.36	159.74	4.38
8	152.09	155.79	3.70

The overall mean gain by classes was 4.15. The total range was from a loss of 4.1 to a gain of 14.13 points. The control teachers ranged from a loss of 0.5 to a gain of 14.13 points. The experimental teachers ranged from a loss of 4.1 to a gain of 8.5 points. As in Goals I and II, the distribution of gain scores for experimental classes was greatly restricted as compared to the control classes. The class mean data is reported in Appendices C-1 and C-2.

4. Correlational Data

Pearson Product Moment Correlation Coefficients were computed for the pretest, posttest and gain scores among the three dependent variables. The coefficients were computed for the total group, the experimental group and the control group. The coefficients for the total group are reported in Table 14.

Table 14

Pearson Product Moment Correlation Coefficients
for 6th Grade Pupils (total group)

	II Post	II Gain	VII Pre	VII Post	VII Gain	I Pre	I Post	I Gain
II Pre	.134	**-.716	** .271	.191	-.030	* .209	.171	-.036
II Post		** .547	* .212	**.258	.045	.174	*.232	.057
II Gain			-.059	.043	.054	-.033	.053	.103
VII Pre				**.507	**-.336	** .298	*.232	-.034
VII Post					** .446	* .203	*.212	.034
VII Gain						-.076	.029	.103
I Pre							**.597	**-.371
I Post								** .409

** = p > .01
* = p > .05

Table 14 shows that within each instrument, the intercorrelations tend to be significant. For Goal I, all three intercorrelations are significant beyond the .01 level; however, the correlation of pretest to the gain score is negative in direction. This same pattern holds for Goal VII. However, for Goal II the coefficient of pretest to posttest is not significant, thus breaking the pattern.

The data showed significant correlation among the pretests for all three goals and among the posttests for all three goals.

It can also be seen that the Goal VII pretest correlated significantly with both the Goal I and the Goal II posttests and the Goal VII posttest correlated with the Goal I pretest.

When the Z-tests between experimental and control group correlations were performed, it was found that six differences were significant. (See Table 15.) When significant, this statistic reveals a difference in the magnitude of a relationship in one group when compared to the same relationship in a second group.

Table 15

6th Grade Pupils

	Z Between Correlations		Significant Z	
Items	Z	P	Experimental r	Control r
VII Post - II Post	3.418	.01	0.3816	0.1265
VII Post - VII Pre	2.592	.01	0.5852	0.4367
VII Post - VII Gain	2.503	.02	0.3813	0.5353
VII Post - I Post	2.414	.02	0.3074	0.1265
VII Post - I Pre	2.262	.03	0.2933	0.1233
I Pre - I Post	2.312	.03	0.3416	0.4917

C. 5th Grade Pupils

Because of the large number of variables addressed, the 5th grade pupil results are presented in encapsulated form.

1. Program Effect

Analyses of covariance techniques were applied to the 17 variables to assess the effects of the teacher-training program. In all 17 cases, the analyses yielded nonsignificant F-ratios. This means that there were no significant differences between the experimental and control groups. The F-ratios are displayed in Table 16.

Table 16

Analyses of Covariance Between Experimental and Control Groups Employing Pretest as Covariate (Df = 1,31)

Subject Area	F-ratio	Significance
Word Meaning	0.5326	Not Significant
Paragraph Meaning	0.0224	N.S.
Spelling	0.6328	N.S.
Word Study Skills	1.5663	N.S.
Language	1.6495	N.S.
Arithmetic Computation	1.3364	N.S.
Arithmetic Concepts	0.4502	N.S
Arithmetic Applications	0.2652	N.S.
Vocational Maturity	1.1053	N.S.
Attitude Toward School	0.2086	N.S.
Creative Attitude	0.3049	N.S.
Creative Ability	0.0057	N.S.
Citizenship	3.0683	N.S.
Understanding Others	0.6520	N.S.
Appreciation of Human Accomplishment	0.2968	N.S.
Self-Concept	0.0270	N.S.
Preparation for Change	0.0119	N.S.

2. Building Effect

The mean grade equivalent scores for each building were computed on the eight subscales of the Stanford Achievement Test. The schools were

ordered by geographic location and labeled by the numbers one through eight. The mean scores are reported in Tables 17a through 17h. In all eight of the subscales, the buildings displayed positive gains. However, most of the gains were very small.

Table 17a

School Mean Grade Equivalent: Word Meaning

School	Pre	Post	Gain
1	4.03	4.22	+.19
2	3.66	4.39	+.73
3	4.07	4.35	+.28
4	3.89	4.10	+.21
5	3.96	4.50	+.54
6	4.50	4.91	+.41
7	4.32	4.85	+.53
8	4.42	4.81	+.39
Overall Mean	4.11	4.52	

Table 17b

School Mean Grade Equivalent: Paragraph Meaning

School	Pre	Post	Gain
1	3.82	3.80	-.02
2	3.79	4.28	+.49
3	3.69	3.94	+.25
4	3.35	3.83	+.48
5	3.73	4.12	+.39
6	4.38	4.52	+.14
7	4.07	4.52	+.45
8	4.09	4.43	+.34
Overall Mean	3.86	4.18	

Table 17c

School Mean Grade Equivalent: Spelling

School	Pre	Post	Gain
1	3.97	4.48	+.51
2	3.80	4.60	+.80
3	3.94	4.41	+.47
4	3.71	4.35	+.64
5	4.00	4.47	+.47
6	4.16	4.76	+.60
7	4.17	4.91	+.74
8	4.23	4.72	+.49
Overall Mean	4.00	4.59	

Table 17d

School Mean Grade Equivalent: Word Study Skills

School	Pre	Post	Gain
1	3.68	3.85	+.17
2	3.33	4.20	+.87
3	3.46	3.84	+.38
4	3.24	3.64	+.40
5	3.74	4.31	+.57
6	4.26	4.80	+.54
7	4.07	4.53	+.46
8	4.08	4.88	+.80
Overall Mean	3.73	4.26	

Table 17e

School Mean Grade Equivalent: Language

School	Pre	Post	Gain
1	3.43	3.70	+.27
2	3.23	3.92	+.69
3	3.27	3.72	+.45
4	3.05	3.52	+.47
5	3.53	3.90	+.37
6	3.82	4.54	+.72
7	3.82	4.49	+.67
8	3.67	4.33	+.66
Overall Mean	3.48	4.02	

Table 17f

School Mean Grade Equivalent: Arithmetic Computation

School	Pre	Post	Gain
1	3.69	4.12	+.43
2	3.59	4.48	+.89
3	3.43	3.97	+.54
4	3.45	3.91	+.46
5	3.82	4.40	+.58
6	3.88	4.49	+.61
7	3.89	4.45	+.56
8	3.73	4.37	+.64
Overall Mean	3.68	4.27	

Table 17g

School Mean Grade Equivalent: Arithmetic Concepts

School	Pre	Post	Gain
1	3.68	4.11	+.43
2	3.48	4.29	+.81
3	3.41	4.05	+.64
4	3.80	4.34	+.54
5	3.63	4.67	+1.04
6	3.90	4.80	+.90
7	3.78	4.68	+.90
8	3.95	4.63	+.68
Overall Mean	3.70	4.45	

Table 17h

School Mean Grade Equivalent: Arithmetic Applications

School	Pre	Post	Gain
1	3.84	4.08	+.24
2	4.06	4.41	+.35
3	3.58	4.00	+.42
4	3.68	4.06	+.38
5	3.68	4.18	+.50
6	3.38	4.68	+1.30
7	4.01	4.47	+.46
8	3.86	4.41	+.55
Overall Mean	3.76	4.29	

The mean scores for each building were computed on the nine scales of the Pennsylvania Educational Quality Assessment Battery. The mean scores are reported in Tables 18a through 18i. Except on the Self-Concept, Vocational Maturity, and Preparation for Change scales, a positive trend is evident.

Table 18a

School Mean: Vocational Maturity

School	Pre	Post	Gain
1	55.10	55.96	+ .86
2	57.55	56.50	-1.05
3	53.40	52.80	- .60
4	56.68	53.15	-3.53
5	54.72	56.32	+1.60
6	57.57	55.20	-2.37
7	57.18	54.38	-2.80
8	56.30	59.00	+2.70
Overall Mean	55.81	55.41	

Table 18b

School Mean: Attitude Toward School

School	Pre	Post	Gain
1	48.46	54.98	+6.52
2	62.30	61.60	- .70
3	48.03	56.96	+8.93
4	48.95	56.80	+7.85
5	47.36	58.20	+10.84
6	56.50	57.20	+ .70
7	47.13	58.53	+11.40
8	54.60	59.35	+4.75
Overall Mean	51.67	57.95	

Table 18c

School Mean: Creative Attitude

School	Pre	Post	Gain
1	125.50	129.50	+4.00
2	135.50	144.00	+8.50
3	127.83	128.00	+ .17
4	138.52	127.50	-11.02
5	126.80	130.80	+4.00
6	132.50	137.50	+5.00
7	132.33	136.50	+4.17
8	130.50	142.50	+12.00
Overall Mean	131.19	134.54	

Table 18d

School Mean: Creative Ability

School	Pre	Post	Gain
1	6.42	9.12	+2.70
2	8.27	7.08	-1.19
3	7.57	8.24	+ .67
4	6.09	6.98	+ .89
5	7.35	9.72	+2.37
6	8.21	11.24	+3.03
7	8.54	10.93	+2.39
8	12.09	12.51	+ .42
Overall Mean	8.07	9.48	

Table 18e

School Mean: Citizenship

School	Pre	Post	Gain
1	143.34	141.22	-2.12
2	161.75	164.00	+2.25
3	139.53	142.00	+2.47
4	139.75	146.70	+6.95
5	144.30	150.92	+6.62
6	156.55	159.82	+3.27
7	154.35	153.78	- .57
8	151.25	161.55	+10.30
Overall Mean	148.85	152.50	

Table 18f

School Mean: Understanding Others

School	Pre	Post	Gain
1	28.36	31.12	+2.76
2	30.10	35.35	+5.25
3	29.73	31.25	+1.52
4	30.92	32.57	+1.65
5	30.64	31.44	+ .80
6	32.67	32.97	+ .30
7	31.88	33.17	+1.29
8	34.65	34.05	- .60
Overall Mean	31.12	32.74	

Table 18g

School Mean: Appreciation of Human Accomplishment

School	Pre	Post	Gain
1	51.00	51.20	+.20
2	51.50	55.15	+3.65
3	51.98	52.55	+.57
4	52.65	51.75	-.90
5	50.84	50.92	-.06
6	52.35	52.40	+.05
7	53.43	53.45	+.02
8	53.95	54.30	+.35
Overall Mean	52.21	52.72	

Table 18h

School Mean: Self-Concept

School	Pre	Post	Gain
1	79.14	82.14	+3.00
2	85.55	84.90	- .65
3	81.81	78.01	-3.80
4	84.27	81.55	-2.72
5	83.32	81.50	-1.82
6	86.20	84.72	-1.48
7	85.07	83.56	-1.51
8	85.15	83.70	-1.45
Overall Mean	83.81	82.51	

Table 18i

School Mean: Preparation for Changing World

School	Pre	Post	Gain
1	100.62	101.60	+ .98
2	96.30	101.15	+4.85
3	105.23	105.05	- .18
4	97.68	98.08	+ .40
5	101.76	99.12	-2.64
6	107.32	100.05	-7.27
7	100.85	99.60	-1.25
8	105.20	102.95	-2.25
Overall Mean	101.87	100.95	

The 5th grade pupil data was further analyzed to assess building effects. Analysis of variance techniques were applied to detect significant differences among the eight buildings. In Table 19, it can be seen that for 16 of the 19 variables the buildings were significantly different in the fall of 1970.

In Table 20, it can be seen that for 13 of the 17 variables the buildings were significantly different in the spring of 1971.

The data in Table 19 indicates that the pupil achievement level of the schools as measured by the Stanford was not equal except on the measure of Spelling ability. The data in Table 20 indicates that significant differences still existed in the spring.

It can be seen in Tables 19 and 20 that there were significant differences in both the fall and spring on the measures of Self-Concept, Citizenship, Creative Attitude and Creative Ability. It can also be seen that there was not a significant difference in either the fall or the spring on the measure of Appreciation of Human Accomplishment. In these five measures, there was presumably little change in the relationships among buildings.

Table 19

Analyses of Variance Among Eight Schools
in Fall at Grade 5 Level (Df = 7,752)

Subject Area (Fall)	F-ratio	Significance
Spelling	1.7062	Not Significant
Word Meaning	2.6264	.05
Paragraph Meaning	4.6920	.01
Word Study Skills	3.5078	.01
Language	5.1003	.01
Arithmetic Computation	7.8574	.01
Arithmetic Concepts	2.8423	.01
Arithmetic Applications	2.8898	.01
Vocational Maturity	3.4394	.01
Basic Skills	3.4293	.01
Attitude Toward School	5.1326	.01
Creative Ability	11.9960	.01
Understanding Others	5.2374	.01
Creative Attitude	3.9551	.01
Self-Concept	5.6930	.01
Appreciation of Human Accomplishment	1.9844	N.S.
Preparation for Change	1.6351	N.S.
Health	9.0329	.01
Citizenship	9.7569	.01

Table 20

Analyses of Variance Among Eight Schools
in Spring at Grade 5 Level (Df = 7,752)

Subject Area (Spring)	F-ratio	Significance
Spelling	2.2824	.05
Word Meaning	4.9817	.01
Paragraph Meaning	3.8267	.01
Word Study Skills	5.6648	.01
Language	6.7854	.01
Arithmetic Computation	4.6229	.01
Arithmetic Concepts	4.6785	.01
Arithmetic Applications	2.6796	.05
Vocational Maturity	1.3679	N.S.
Attitude Toward School	1.7797	N.S.
Creative Ability	9.6514	.01
Understanding Others	1.6855	N.S.
Creative Attitude	2.1427	.05
Self-Concept	2.2535	.05
Appreciation of Human Accomplishment	1.7199	N.S.
Preparation for Change	3.2949	.01
Citizenship	4.5552	.01

On four of the measures there was a change between fall and spring testing. The measure of Preparation for a Changing World was not significantly different among buildings in the fall but was significantly different in the spring. Such a change is probably not desirable.

The measures of Understanding Others, Attitude Toward School and Vocational Maturity changed from significantly different in the fall to not significantly different in the spring. Such a change is probably desirable.

Correlational techniques were utilized to assess the relationship of pupil variables and buildings. In addition to the arbitrary designation of the values one to eight for buildings, a new variable "Location" was introduced. The five uptown schools (numbers one to five) were assigned a value of one and the three hill schools (numbers six to eight) were assigned a value of two.

It can be seen from Table 21, which uses fall pupil measures, that 14 of the 18 pupil measures were significantly related to Location and 12 of the 18 were significantly related to Building.

It can be seen from Table 22 that in the spring, 12 of 17 variables remained significantly related to Location and 11 of 17 to Building.

The Building and Location variables were also correlated with the teacher variables of sex and teaching experience. Teaching experience was found to be unrelated to both while teacher sex was related to both Building and Location. These results are shown in Table 23. An examination of the 5th and 6th grade teacher variables revealed that average experience ranged from 1.4 years in one building to 11.6 in another, and the proportion of female teachers was 100 per cent in one building to 29 per cent in another.

3. Correlational Data

Pearson Product Moment Correlation Coefficients for the pretest and posttest data of the Stanford Achievement Test and Educational Quality Assessment Battery were computed. The significant coefficients are reported in Table 24.

Table 21

Correlation of Pretest Variables to
School Location and Building
N = 34

Variable	Location	Building
Word Meaning	0.6553	0.4817
Paragraph	0.6386	0.4041
Spelling	*0.3204	*0.2680
Word Study Skills	0.4764	0.3753
Language	0.4901	0.3723
Arithmetic Computation	0.4919	0.4574
Arithmetic Concepts	0.4144	0.3735
Arithmetic Application	*0.1005	*0.0725
Vocational Maturity	0.3634	0.3458
Attitude Toward School	*0.1690	*0.0197
Self-Concept	0.4452	0.5288
Understanding Others	0.5883	0.6694
Citizenship	0.5303	0.3688
Health	0.4008	*0.3238
Creative Attitude	0.3580	*0.3308
Creative Ability	0.5034	0.5044
Appreciation of Human Accomplishment	0.4567	0.3851
Preparation for Changing World	*0.2286	*0.1831

* denotes coefficients which are not significant

Table 22

Correlation of Posttest Variables to
School Location and Building
N = 34

	Location	Building
Word Meaning	0.7282	0.6411
Paragraph Meaning	0.4917	0.4389
Spelling	0.4323	0.4356
Word Study Skills	0.5889	0.5821
Language	0.6194	0.5399
Arithmetic Computation	0.4437	0.4037
Arithmetic Concepts	0.4876	0.5778
Arithmetic Application	0.5037	0.4164
Vocational Maturity	*0.1293	*0.0414
Attitude Toward School	*0.1463	*0.2239
Self-Concept	0.4519	*0.3079
Understanding Others	*0.2944	*0.2530
Citizenship	0.4712	0.4635
Creative Attitude	0.4293	0.3657
Creative Ability	0.6121	0.5392
Appreciation of Human Accomplishment	*0.1731	*0.1307
Preparation for Changing World	*-0.0948	*-0.1647

* denotes coefficients which are not significant

Table 23

Correlation of Teacher Variables to Location

Teacher Sex to Location	*0.4097
Teacher Sex to Building	**0.4885
Teacher Experience to Location	0.1821
Teacher Experience to Building	0.2449

*.05 r 30 = 0.349
**.01 r 30 = 0.449

All of the attitude measures were related to at least some of the achievement measures.

Pearson Product Moment Correlation Coefficients for the pretest and posttest scores were computed between the Educational Quality Assessment variables. As can be seen in Table 25, there was an evident pattern of pretest to pretest and posttest to posttest relations. When considering the nature of affective measures, a temporal moderator is not unexpected.

Three of the pretests significantly correlated with posttests. The pretest Understanding Others predicted the Creative Attitude posttest which suggests that tolerance and creative attitude are related. The pretest of Citizenship predicted the Creative Ability which may be interpreted many ways.

The Basic Skills pretest predicted the posttests of Creative Attitude, Creative Ability, Citizenship and Vocational Maturity. This would indicate the existence of a g-factor, probably intelligence, which functions in all four measures.

Pupil race correlated significantly to the posttests of Paragraph Meaning, Language, Arithmetic Computation, Arithmetic Concepts and Arithmetic Applications. This indicates that a white pupil would tend to do better at the end of the school year in these achievement areas than a black pupil. These relationships did not exist in the fall testing.

Table 24

Significant Pearson Product Moment Correlations of Pupil Achievement and Attitude Data at 5th Grade Level (n = 738)*

Correlates	Coefficient	Significance
Self-Concept-Fall to Language-Fall	.2240	.05
Self-Concept-Fall to Arithmetic Computation-Fall	.2191	.05
Self-Concept-Fall to Arithmetic Concepts-Fall	.2610	.01
Self-Concept-Fall to Arithmetic Applications-Fall	.2721	.01
Self-Concept-Fall to Paragraph Meaning-Spring	.2064	.05
Self-Concept-Fall to Word Study Skills-Spring	.1981	.05
Self-Concept-Fall to Language-Spring	.2044	.05
Self-Concept-Fall to Arithmetic Concepts-Spring	.2085	.05
Self-Concept-Fall to Arithmetic Applications-Spring	.2080	.05
Understanding Others-Fall to Word Meaning-Fall	.2149	.05
Understanding Others-Fall to Paragraph Meaning-Fall	.2076	.05
Understanding Others-Fall to Language-Fall	.2198	.05
Understanding Others-Fall to Arithmetic Concepts-Fall	.2476	.05
Understanding Others-Fall to word Meaning-Spring	.2095	.05
Understanding Others-Fall to Paragraph Meaning-Spring	.2392	.05
Understanding Others-Fall to Language-Spring	.2295	.05
Understanding Others-Fall to Arithmetic Concepts-Spring	.2228	.05
Understanding Others-Fall to Arithmetic Applications-Spring	.2112	.05
Understanding Others-Spring to Paragraph Meaning-Spring	.2112	.05
Attitude Toward School-Fall to Arithmetic Concepts-Fall	.2010	.05
Vocational Maturity-Fall to Arithmetic Concepts-Fall	.2639	.01
Vocational Maturity-Fall to Arithmetic Applications-Fall	.2566	.01
Vocational Maturity-Spring to Paragraph Meaning-Fall	.1993	.05
Vocational Maturity-Spring to Language-Fall	.2195	.05
Vocational Maturity-Spring to Word Meaning-Spring	.2034	.05
Vocational Maturity-Spring to Paragraph Meaning-Spring	.2146	.05
Vocational Maturity-Spring to Spelling-Spring	.2105	.05
Vocational Maturity-Spring to Word Study Skills-Spring	.1965	.05
Vocational Maturity-Spring to Language-Spring	.2450	.05
Human Accomplishment-Fall to Arithmetic Computation-Fall	.2036	.05
Human Accomplishment-Fall to Arithmetic Applications-Fall	.2309	.05
Creative Ability-Fall to Word Meaning-Spring	.1972	.05
Creative Ability-Fall to Word Study Skills-Spring	.2190	.05
Creative Ability-Fall to Language-Spring	.2064	.05

*Creative Ability-Spring correlated significantly with all scores except Spelling-Fall; Creative Attitude-Fall also correlated significantly with all scores except Spelling-Fall; Creative Attitude-Spring correlated significantly with all scores except Arithmetic Computation-Fall; Citizenship-Fall correlated significantly with all scores except Spelling-Spring; Citizenship-Spring correlated significantly with all scores except Arithmetic Concepts-Fall and Arithmetic Applications-Fall. The Health Attitude Inventory correlated significantly with all scores except Spelling-Fall.

Table 25

Pearson Product Moment Correlations of Individual Pupil Scores N = 738

		Self-Concept Pre	Post	Understanding Others Pre	Post	Basic Skills Pre	Attitude Toward School Pre	Post	Citizenship Pre	Post	Health Pre	Creative Attitude Pre	Post	Vocational Maturity Pre	Post	Appreciation of Human Accomplishment Pre	Post	Preparation for Change Pre	Post	Creative Ability Pre
Self	Post	.1070																		
Others	Pre	**.5664	.0763																	
	Post	.1074	**.5576	.1548																
Basic Skills	Pre	**.2811	.1558	**.2458	.1835															
School	Pre	**.3110	.0384	**.2625	.0482	.1652														
	Post	.0981	**.4512	.0468	**.4718	.1452	.0439													
Citizenship	Pre	**.4913	.0505	**.3479	.0787	**.2755	**.4872	.1036												
	Post	.1538	**.4065	.0718	**.3902	**.2979	.1254	**.5246	.1873											
Health	Pre	**.3776	.0682	**.3366	.0938	**.3015	.1525	.0589	**.3063	.0788										
Creative Attitude	Pre	**.5422	.0316	**.4271	.0875	**.3091	**.3326	.0361	**.4621	.1534	**.2632									
	Post	.1460	**.5469	.1090	**.5869	**.3135	.1074	**.5136	.1370	**.5268	.0994	.1768								
Vocational Maturity	Pre	**.5051	-.0044	**.3484	.0351	*.1948	**.3779	-.0012	**.5042	.0717	**.2565	**.5520	.0916							
	Post	.0945	**.5693	.0723	**.5633	*.2089	.0513	**.5682	.0001	**.5809	.0179	.0750	**.6585	.0816						
Human Accomplishment	Pre	*.2516	.0271	*.2372	.0747	*.2413	.1507	.0967	.1770	.0572	**.3872	.1810	.0869	.0981	-.0209					
	Post	.0596	*.2268	.0584	*.2124	.0789	.0240	**.2765	.0412	.1795	.0785	.0284	**.2717	-.0487	*.2242	.0992				
Change	Pre	*.2111	-.0653	*.2430	-.0533	.1843	.1269	-.0764	.1309	-.0104	**.2657	.1420	.0313	.1067	-.1200	**.3469	-.0920			
	Post	.0255	**.2902	.0165	**.2775	.1328	-.0078	*.2219	.0077	*.2155	.0402	.0320	*.2314	-.0602	**.3182	-.0138	**.3481	-.0022		
Creative Ability	Pre	.1044	.0693	.1316	.0747	.1923	.0405	.0264	.1153	.0545	.0712	.1374	.0902	.1061	.0852	.0646	-.0032	.0784	.0273	
	Post	.1726	.1623	*.1980	.1641	**.2858	.1390	.1096	*.2112	.1355	.1693	.1860	*.2141	.1046	.1464	.0526	*.1957	-.0274	.1462	**.4325

*.05 $r_{100} = 0.195$

**.01 $r_{100} = 0.254$

D. Teachers

1. Descriptive Data

The study originally was composed of 78 grade 5 and 6 teachers. This constituted the entire 5tn and 6th grade teacher population in the Harrisburg City School District.

The summated teacher data is reported in Appendix D. Notable among these data are that over two-thirds of the group were female and over half of the group were married. Exactly half of the group were 29 years of age or less. More than half had no one dependent upon their incomes. While the average experience was between two and five years, more than 40 per cent had less than two years experience. Of the 78 teachers, 23 were new and 11 had more than 20 years experience.

Most of the teachers had come from outside the Harrisburg area. Only four of the 78 teachers had guardians who had been teachers. Thirty-three of the 78 teachers live in an urban community, 40 in a suburban. Only five of the teachers live in low income (less than $6,000 income) housing areas and only 23 live in a high income area (above $9,000 income). The salaries of the teachers in the study tended toward the lower end of the scale, probably as a result of their inexperience.

2. Program Effect

The major effects of the program upon the teachers were assessed by means of the Dogmatism Scale developed by Dr. Rokeach, and the Education Scales developed by Dr. Kerlinger. In Tables 26 and 27, the means for the pre- and posttests are reported for grades 5 and 6. From the 5th grade data, it can be seen that both groups increased in terms of anti-dogmatism. It can also be seen that the control group decreased on the ESA while the experimental group

effectively did not change. The experimental group gained on the ESB while the control group went down. Gains on the ESA were considered desirable but gains on the ESB were not.

In the 6th grade, both groups gained substantially on anti-dogmatism and less so on the ESA. The experimental group decreased noticeably on the ESB while the control group increased on the ESB. The 6th grade data supports the position of the investigators while the 5th grade data does not.

Table 26

5th Grade Teacher Test Mean Scores

	Rokeach	ESA	ESB
Experimental Pre	146.18	142.59	124.18
Experimental Post	148.65	142.71	125.53
Control Pre	135.25	138.69	134.69
Control Post	136.00	135.94	131.56

Table 27

6th Grade Teacher Test Mean Scores

	Rokeach	ESA	ESB
Experimental Pre	154.69	146.56	119.44
Experimental Post	159.25	147.81	113.31
Control Pre	143.88	142.53	120.82
Control Post	147.24	142.65	123.00

Analysis of covariance techniques were used to analyze the significance of the program effects. The results of the analyses of covariance are reported in Tables 28 through 33. Since the requisite F coefficient is 4.60, it can be

seen that none of the differences were statistically significant. Thus, the hypothesis, that the in-service program would make a significant change in teacher attitudes, was rejected at both grade levels for all three measures.

Table 28

Analysis of Covariance on Rokeach for 5th Grade Teachers

Source	Degrees of Freedom	Sum of Squares	Mean Square	F
Between	1	118.90	118.90	0.796
Within	30	4482.46	149.42	
Total	31	4601.36		

Table 29

Analysis of Covariance on ESA for 5th Grade Teachers

Source	Degrees of Freedom	Sum of Squares	Mean Square	F
Between	1	209.45	209.45	1.890
Within	30	3326.74	110.89	
Total	31	3536.19		

Table 30

Analysis of Covariance on ESB for 5th Grade Teachers

Source	Degrees of Freedom	Sum of Squares	Mean Square	F
Between	1	0.36	0.36	0.002
Within	30	5226.03	174.20	
Total	31	5226.39		

Table 31

Analysis of Covariance on Rokeach for 6th Grade Teachers

Source	Degrees of Freedom	Sum of Squares	Mean Square	F
Between	1	73.55	73.55	0.400
Within	30	5463.27	182.11	
Total	31	5536.82		

Table 32

Analysis of Covariance on ESA for 6th Grade Teachers

Source	Degrees of Freedom	Sum of Squares	Mean Square	F
Between	1	58.72	58.72	0.280
Within	30	6198.55	206.62	
Total	31	6156.70		

Table 33

Analysis of Covariance on ESB for 6th Grade Teachers

Source	Degrees of Freedom	Sum of Squares	Mean Square	F
Between	1	590.95	590.95	2.79
Within	30	6358.14	211.94	
Total	31	6949.09		

Analyses of parallel regression computed to test the assumptions underlying analysis of covariance were not significant. Analyses computed to test the integrity of the sample were not significant.

3. Teacher Tests and SES

In an effort to ascertain the relationship between teacher socio-economic status (SES) and teacher attitude, a correlation matrix was computed. This matrix is reported in Table 34.

The Rokeach prescores correlated beyond the .01 level but negatively with both teacher age and experience. This means that older teachers tended to be more dogmatic. In accordance with this, teacher salary correlated negatively at the .05 level with the Rokeach pretest scores. The Rokeach gain scores correlated negatively at the .01 level with the type of community the teacher resides in. The residence classification was one for rural, two for urban, and three for suburban. This correlation indicates that a suburban teacher was more likely to have a greater gain in dogmatism over the school year than an urban or rural teacher. However, one must note that the Rokeach prescore correlated significantly at the .05 level and positively with the type of community the teacher resides in. The existence of two significant correlations in opposite directions suggests a dramatic, and in this case negative, shift in the attitude of a specific subsection of the teacher population.

As with Rokeach, the ESB correlations with age and experience were significant beyond the .01 level and with salary beyond the .05 level. The results of the ESB correlations support the Rokeach data. The fact that Rokeach is negative where ESB is positive is merely an artifact of the scoring format. It can also be seen that the ESB scores correlate significantly with teacher sex. This indicates that female teachers tend to espouse the more traditional pedagogy. The ESB gain score correlated positively beyond the .05 level with the occupation of the teacher's guardian. This would seem to indicate the higher the status of the teacher's background the more likelihood of a gain in conservative attitude over the school year.

Table 34

Correlation of SES to Teacher Tests

	Sex	Marital Status	Age	Experience	College	Guardian's Occupation	Area of Residence	Type of Community (Residence)	Residence Housing Cost	Vocation of Neighbors	Number of Technical Dependents	Salary
	1	2	3	4	5	6	7	8	9	10	31	32
ESA Pre	.119	.074	-.179	-.165	-.217	.005	.045	.091	.178	.030	*-.295	.011
ESB Pre	* .250	.029	** .343	** .465	-.226	-.079	.173	-.161	-.178	-.076	.092	* .281
ROK Pre	-.128	.034	**-.382	**-.471	.082	.113	.115	* .258	.038	.074	-.215	*-.260
ESA Gain	-.212	-.012	-.028	-.043	.201	-.054	-.023	.116	-.014	.207	.243	-.186
ESB Gain	-.035	-.039	-.144	-.115	.169	* .256	.120	.172	-.033	.067	-.053	-.077
ROK Gain	-.156	-.120	.199	.169	.138	-.137	.097	**-.333	.089	.071	-.001	.125

*p = .05

**p = .01

The ESA scores related only to the number of the teacher's dependents. This indicates that teachers with smaller families dependent on their incomes have a more open, democratic attitude. There were no significant correlations between ESA gain scores and teacher SES.

To further explore the relationships with SES, the data were broken down by grade level, then by experimental vs. control groups and reanalyzed. To test the significance of differences between correlations, a Z-test was used. Table 35 displays the significant differences between the experimental and control teachers.

Table 35

Significant Z Between Experimental and Control Teachers on SES

Correlation	Z	P	Exp. r	Control r
Vocation of Neighbors-ESB Pre	2.75	.01	.2649	-.3849
Vocation of Neighbors-ROK Pre	2.79	.01	-.2909	.3677
Vocation of Neighbors-ESB Gain	3.23	.01	-.3951	.3610
Age-ESA Gain	2.00	.05	-.2803	.2009
Type of College-ESA Gain	2.17	.04	-.1214	.3907
Area of Residence-ROK Gain	2.21	.03	-.3629	.1574
Sex-ROK Gain	2.03	.05	.2378	-.2519

It can be seen in Table 35 that the correlations of vocation of the teacher's neighbors differs beyond the .01 level for the Rokeach pretest and ESB pre and gain scores. In the control group, the more traditional the pretest response the higher the reported SES of the teacher's neighbors, whereas this was just the opposite in the experimental group. This pattern was repeated with the Rokeach test. However, the gain scores for ESB reversed

this pattern. The experimental teachers with higher status neighbors tended to make gains in traditionalism, while control teachers with higher status neighbors tended to move away from the traditional viewpoint.

As can be seen in Table 35, there was a significant difference between experimental and control on ESA gain for teacher age and type of teacher college. In the experimental group the younger teachers made greater gains in ESA, while in the control group the older teachers made greater gains. In the experimental group the teachers who made greater gains in ESA would tend not to be from a university, while in the control group a university background tended to indicate gains in ESA.

It can also be seen that gains on the Rokeach test were significantly different between the experimental and control groups on teacher sex and the teacher's area of residence. In the control group female teachers tended toward gains in dogmatism, and in the experimental group male teachers tended toward gains in dogmatism. In the experimental group suburban teachers made greater gains in anti-dogmatism than urban teachers, while in the control group suburban teachers tended to increase in anti-dogmatism more than urban teachers.

Just as between experimental and control groups, there were significant differences in the relationships of SES factor to test data between 5th and 6th grades. The significant Z-tests are displayed in Table 36.

It can be seen that the Rokeach pretest correlations with age and salary were significantly different between the 5th and 6th grades. As would be expected for both age and salary, dogmatism is positively and significantly correlated in the 6th grade. However, in the 5th grade, dogmatism is only slightly related to teacher age and not related at all to teacher salary.

Table 36

Significant Z Between 5th and 6th Grade Teachers on SES

Correlation	Z	P	5th r	6th r
Age-ROK Pre	2.47	.02	-.1165	-.6203
Salary-ROK Pre	2.38	.02	.0142	-.5170
Guardian's Occupation-ESA Gain	2.39	.02	.2277	-.3386
Housing Cost-ESA Gain	2.30	.03	.2085	-.3377
Type of Community-ESA Gain	1.95	.05	-.1276	.3325
College-ESB Gain	2.13	.04	.3764	-.1302
Vocation of Neighbors-ESB Gain	2.47	.02	.2978	-.2898

The correlation of the ESB gain score with the teacher's type of college and neighbor's vocation is significantly different between 5th and 6th grade teachers. The 5th grade teachers among neighbors with lower vocational status gain more in traditionalism while the 6th grade teachers in similar neighborhoods gain less in traditionalism. The university-trained 5th grade teacher made greater gains in traditionalism than the teachers who had been trained at teachers colleges, and the 6th grade university-trained teacher moved away from traditionalism.

For ESA gain scores there were three significant differences in correlations between 5th and 6th grades. As the reported status of the teacher's guardian increased, the ESA gain scores increased for 5th grade teachers and decreased for 6th grade teachers. As the reported cost of teacher's housing increased, 5th grade teachers' gain scores decreased but 6th grade teachers' gain scores increased. As housing locale moved from commercial to residential, 5th grade teachers' ESA gain scores decreased and 6th grade teachers' ESA gain scores increased.

4. Teacher Job Satisfaction

The responses to questions concerning job satisfaction are reported in Appendix D.

The correlation matrix of teacher tests to the nine factors of teacher job satisfaction are reported in Table 37. There are only two significant correlations in this table. The Rokeach pretest correlates positively at the .05 level with the teacher's perception of the ideal advancement policy. This means that teachers who are anti-dogmatic tend to prefer advancement based upon friendships as opposed to merit considerations. The ESA gain correlates negatively at the .05 level with the item on perception of their job as exciting and rewarding. This means that teachers who gained in attitude toward the open-democratic classroom found their job exciting and rewarding.

Table 37

Correlations of Job Satisfaction to Teacher Tests

	District's Present Advancement Policy	The Ideal Advancement Policy	Future Plans	Job is Exciting and Rewarding	Just a Cog	Involved in School	Volition in School	Satisfied with School	Degree of Influence
	11	12	13	14	15	16	17	18	19
ESA Pre	.074	.239	.074	.142	.059	-.034	.003	-.034	.176
ESB Pre	.045	-.064	.093	.116	-.211	-.020	-.072	-.114	-.062
ROK Pre	.049	* .255	.018	.006	.106	-.072	.207	-.047	.062
ESA Gain	-.034	-.067	-.068	*-.289	.165	-.082	.076	-.064	-.089
ESB Gain	.072	.100	.161	.050	.005	.154	.021	-.128	.087
ROK Gain	-.066	-.111	.121	-.117	.215	-.101	.030	.237	-.098

*p = .05

A further partitioning of the correlations by experimental vs. control group yielded four significant differences. In the control group, the ESB pretest was a negative predictor of teacher satisfaction with school while it was positive in the experimental group. This means that in the control group, those scoring high on ESB, traditionalism, were usually satisfied with the school situation which was not true in the experimental group. This finding is difficult to explain.

On the Rokeach dogmatism pretest it can be seen in Table 38 that the anti-dogmatic teachers in the control group favor advancement based on seniority while these factors are unrelated in the experimental group. The source of difference seems to be the existence of a tendency in one group and the absence of that tendency in the other.

Table 38

Significant Z Between Experimental and Control Teachers on Job Satisfaction

Correlation	Z	P	Exp. r	Control r
Satisfaction-ESB Pre	1.97	.05	.1213	-.3514
Ideal Adv. Pol.-ROK Pre	2.23	.03	-.0636	.4504
Future-ESB Gain	1.98	.05	-.1630	.3116
Future-ROK Gain	2.00	.05	.3170	-.1640

The future plans of the teachers displayed different relationships between the experimental and control groups. The frequency distribution for this factor is reported in Appendix D.

The data was partitioned between 5th and 6th grades and Z-tests run to assess the differences. From Table 39 it can be seen that those teachers in the 5th grade who gained on the ESA felt that the district used seniority for advancement while in the 6th grade those who gained on the ESA did not feel that seniority was the basis for advancement.

Table 39

Significant Z Between 5th and 6th Grade Teachers on Job Satisfaction

Correlation	Z	P	5th r	6th r
Satisfaction-ROK Pre	2.11	.04	.1781	-.3226
Pres. Adv. Pol.-ESA Gain	2.30	.03	.2438	-.3066
Exc. and Res.-ROK Gain	2.66	.01	.4125	-.2094
Influence-ROK Gain	1.96	.05	.3132	-.1546

It can also be seen that a high anti-dogmatism on the pretest related with satisfaction with the school for 5th grade teachers and dissatisfaction for 6th grade teachers. Also, gains on the Rokeach or movement away from dogmatism for 5th grade teachers related to their not finding the job exciting and rewarding and not feeling that the teacher has any influence, but gains on the Rokeach for 6th grade teachers related to their finding the job rewarding and exciting and the teacher's feeling that he has influence.

The correlations of job satisfaction to teacher SES are displayed in Table 40. Teacher salary related significantly to teacher satisfaction and perception of volition. This means that teachers with high salaries are satisfied and feel they have professional volition. However, the significant negative correlation of experience with involvement suggests these

Table 40

Correlations of Job Satisfaction to SES

		Sex	Marital Status	Age	Experience	Teacher's College	Background	Residence	Community	Housing Cost	Neighbor's Vocation	Family Size	Salary
		1	2	3	4	5	6	7	8	9	10	31	32
Advancement	11	-.0741	-.0034	.0279	-.0838	-.0382	.0741	-.0809	.1489	.0535	.0141	-.0610	-.0179
Ideal Advancement	12	-.1450	.1031	-.1078	*-.2679	-.0652	.1517	-.0008	.1757	*-.2625	-.0467	-.1873	-.1465
Future	13	* .2757	.0235	.1272	.0111	-.1433	-.1633	.0256	.1302	.0164	.0902	-.1004	.2219
Job as Exciting and Rewarding	14	.0946	.2253	-.1672	-.0033	.0658	.1632	.0491	-.0696	.1088	-.0413	-.1429	-.0423
Teacher Just a Cog	15	-.0919	-.0785	-.0760	-.1037	-.0039	-.0969	.0704	-.0903	.1512	.0559	-.1055	-.0020
Teacher Involved	16	.0335	.1323	-.2411	**-.3419	.2276	.2363	-.0696	-.1348	.0679	-.0961	.0957	*-.2694
Teacher Volition	17	-.0132	.0297	.1224	.0963	-.0676	.0479	.0697	.0228	-.2056	.0165	-.1290	* .2945
Teacher Satisfied	18	.1297	-.1331	.1916	.0609	.0535	.0692	-.0633	-.0599	.0022	-.0807	**-.3406	* .3050
Teacher Influence	19	.0155	-.1152	-.1610	-.2330	.1942	.1966	-.0580	.0547	.0288	-.0126	-.1741	-.1038

*p = .05
**p = .01

same teachers are not involved in school activities but that less experienced teachers see themselves as more involved with school activities.

The high negative correlation of family size to satisfaction suggests that teachers with several people dependent upon their income are less satisfied with their school than those with few dependents.

There were two significant negative correlations with ideal advancement. Those teachers living in higher cost residences and the more experienced teachers placed emphasis on merit as an ideal basis for advancement.

The relationships between job satisfaction and classroom practices are shown in Table 41. Teachers who preferred the merit system as an ideal basis for advancement did not regularly use learning games, allow pupils to develop the classroom rules or use pupils as tutors. The less a teacher felt he was just a cog, the more he used pupils as tutors.

There were several significant correlations with teacher volition. A high score on volition means the teacher perceives himself as professionally independent and personally responsible for the growth of his pupils. As indicated by the significant correlations in Table 41, the high volition teacher uses innovative practices regularly.

Five of the teacher practices correlated significantly with teacher satisfaction. Except for the degree of pupil involvement, the high volition teacher and the satisfied teacher were similarly innovative.

The interrelationships of the elements of job satisfaction are reported in Table 42. Teacher satisfaction correlated significantly with both the feeling that the teacher was not just a cog and that he had high volition. Teachers who felt they had a great deal of influence with their colleagues on educational matters also felt involved in school activities and that the job was exciting and rewarding. In fact, the more involved a teacher felt the more likely he was to report his job as exciting and rewarding.

Table 41

Correlations of Job Satisfaction to Classroom Practices

		Pupils plan Lessons	Pupils Teach	Use Small Groups	Use Role Playing	Use Games	Pupils Evaluate Climate	Pupils Develop Rules	Involve Pupils in Community Projects	Use Citizens as Resource	Pupils as Tutors	Others
		20	21	22	23	24	25	26	27	28	29	30
Advancement	11	-.0305	.1686	.1089	.1461	.1440	.0697	.2351	.2374	.2004	.0770	.0655
Ideal Advancement	12	.0577	.2290	.0304	.1026	**.3808	.2294	** .3248	.2139	.0693	* .3007	.0893
Future	13	-.0035	.0727	.2026	.0499	.0523	.0391	.0305	.1138	.0798	.1057	.0498
Job as Exciting and Rewarding	14	.0896	-.1472	-.0297	-.0287	.0293	.1616	-.0117	.0337	.0328	.0388	.1224
Teacher Just a Cog	15	.1740	.2289	.1311	.2190	.1927	.1071	.1373	.1423	.2025	* .2613	.2099
Teacher Involved	16	.0615	.1299	.2228	.0441	.2037	.1280	.1946	.1047	-.0122	.1275	*.2877
Teacher Volition	17	** .3545	** .3434	* .2868	** .3431	**.4043	.2395	** .3480	*.2963	* .2599	** .3830	*.2737
Teacher Satisfied	18	.2029	* .3184	* .2866	* .2948	.1999	.2173	.2130	*.3187	** .4049	.2065	.2147
Teacher Influence	19	-.0367	.0617	.0618	.0602	.1885	-.0173	.0322	.1085	-.0052	-.0084	.1578

*p = .05
**p = .01

Table 42

Intercorrelations of Job Satisfaction

	Advancement	Ideal Advancement	Future	Exciting & Rewarding	Just a Cog	Involved	Volition	Satisfied	Influence
	11	12	13	14	15	16	17	18	19
12	.1678								
13	.1087	.0304							
14	.1129	-.1073	*-.2842						
15	-.2173	-.0698	-.0397	-.2036					
16	.1516	.0414	-.1085	** .4473	-.0616				
17	-.0232	.0275	.0915	-.1600	** .4034	-.1067			
18	-.0257	-.0338	.1812	-.2222	** .4253	-.1089	** .3458		
19	.1919	.0722	.1536	** .4538	.0219	** .5512	-.0017	.0880	

*p = .05
**p = .01

5. Classroom Practices

The correlation coefficients computed between classroom practices and teacher tests are reported in Table 43. The significant negative relationships with the ESB pretest and the significant positive relationships with the ESA and Rokeach pretests are desirable considering the underlying rationale of the measures.

Of the 10 specific classroom practices reported in the table, six correlated significantly and negatively with the ESB pretest. This would indicate teachers who did not agree with the practice of involving pupils in the total class process nor employ such innovative practices as role play reflect a tendency toward traditional attitudes.

Teachers who agreed with the practice of pupils evaluating the classroom climate scored higher on the measures of attitude toward the open-democratic classroom and anti-dogmatism. This would seem to reinforce the validity of the ESA and Rokeach tests.

The relationships between the tests and practices tended to be consistent across the experimental and control groups. However, there were four significantly different relationships as can be seen in Table 44.

The experimental group displayed a significant positive association of the ESA pretest with the use of learning games and with the use of pupils as tutors. The experimental group also displayed a significant relationship of the ESB gain scores with the practice of pupils evaluating the classroom climate and with innovative practices not delineated by the measure. The two significant Z-tests for the ESA pretest indicate that in the experimental group, teachers' uses of the practices of learning games and pupil tutors were positively related to open-democratic attitudes. The two significant Z-tests for the ESB gain scores indicate that the decreasing use of pupil evaluation of classroom climate and other innovations was related to gains

Table 43

Correlations of Classroom Practices to Teacher Tests

	Pupils Assist in Lesson Planning	Pupils Assist in Teaching	Use Small Groups	Use Role Playing	Use Games To Aid Learning	Pupils Evaluate Classroom Climate	Pupils Assist in Developing Class Rules	Involve Pupils in Community Projects	Use Local Citizens as a Resource	Pupils as Helpers or Tutors	Other
	20	21	22	23	24	25	26	27	28	29	30
ESA Pre	.146	.144	.104	.027	.240	* .285	.086	.074	-.010	.184	.133
ESB Pre	**-.432	**-.368	**-.346	*-.283	**-.372	-.134	-.129	*-.311	-.197	-.176	-.212
ROK Pre	.233	.233	.232	.068	* .254	* .265	.080	.112	-.024	.125	.068
ESA Gain	-.057	-.171	.008	-.060	-.040	.122	.014	-.044	-.070	-.046	.042
ESB Gain	-.011	-.091	.075	-.081	.028	-.095	-.051	.023	-.018	-.040	-.101
ROK Gain	.080	.022	.020	.167	.004	-.130	.007	.121	.130	.002	.061

*p = .05
**p = .01

in traditional attitudes over the school year by the experimental teachers. These relationships with the ESA pretest and the ESB gains did not exist in the control group.

Table 44

Significant Z Between Experimental and Control Teachers on Classroom Practices

Correlation	Z	P	Exp. r	Control r
Games-ESA Pre	2.29	.03	.4781	.0420
Pupil Tutors-ESA Pre	2.33	.03	.4014	-.0131
Pupil Eval.-ESB Gain	2.23	.03	-.4191	.1004
Other-ESB Gain	2.28	.03	-.4405	.0880

There were four significant differences between the relationships in the 5th and 6th grades, as shown by the Z-tests in Table 45.

Table 45

Significant Z Between 5th and 6th Grade Teachers on Classroom Practices

Correlation	Z	P	5th r	6th r
Local Cit.-ROK Pre	2.07	.05	.2484	-.2478
Pupil Eval.-ROK Pre	1.94	.06	.0372	.4152
Pupil Eval.-ROK Gain	2.07	.05	.2643	-.2373
Role Playing-ESB Gain	2.28	.03	.1586	-.3789

The Rokeach pretest correlated with the use of local citizens as resource personnel positively in 5th grade and negatively in 6th grade. The correlation coefficients were equal in magnitude but opposite in direction. This would indicate that dogmatic teachers in the 6th grade use citizens as resource people; and to the same degree, dogmatic teachers in the 5th grade do not use or agree with the use of citizens as a resource.

The Rokeach pretest correlated significantly with pupil evaluation in 6th grade but not in 5th. This means that in 6th grade, dogmatic teachers tended not to agree with having pupils evaluate the classroom climate. In 5th grade, the pretest attitudes were not related to this practice. The same practice related positively to the Rokeach gain scores for 5th grade and negatively for 6th grade. This suggests that, in the 6th grade, teachers who became more dogmatic agreed more with having pupils evaluate the classroom climate. However, in 5th grade, teachers who became more dogmatic agreed less with the practice of pupil evaluation of classroom climate.

The use of role playing correlated significantly and negatively with the ESB gains in 6th grade but not in 5th grade. This implies that 6th grade teachers who did not use role playing moved toward traditional views more than teachers who used role playing.

6. Teacher Attitudes and 6th Grade Pupil Scores

The teacher attitude scores were correlated with the class mean scores to assess the mutual relationships. For the entire 6th grade sample, none of the pupil pretests were significantly related to the teacher pretests. This was to be expected in a situation where the teachers and pupils had been together for less than three weeks.

The relationships of the Rokeach scores to the pupil scores on the three goals are reported in Table 46. The only significant correlation was between the Rokeach pretest and the Goal VII posttest. This points to a disposition for pupils of more dogmatic teachers to have higher Goal VII posttest scores.

Table 46

6th Grade Teacher to Class Correlations: Rokeach

	VII			I			II		
	Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
ROK Pre	-.27	*-.38	-.19	.02	-.34	-.30	-.10	-.07	.02
ROK Post	-.19	-.22	-.06	-.03	-.24	-.16	-.05	-.09	-.03
ROK Gain	.09	-.20	.17	-.08	.12	.19	.07	-.04	-.09

*p > .05

There were three significant differences between the experimental and control groups as shown in Table 47. The control group had a high, negative correlation between the Rokeach pretest and the Goal I gain; the experimental group exhibited a slight, positive relationship. In the control group, a strong pupil gain on Goal I would be associated with a teacher who was highly dogmatic at the beginning of the year.

The pupil Goal II posttest correlated significantly differently for the two groups with both the Rokeach pre- and posttest. In the experimental group, a high pupil posttest score on Goal II was associated with the teacher pre- and posttest tending toward high dogmatism. This relationship did not hold true for the control group.

Table 47

Significant Z on Rokeach to Class Correlations
Between Control and Experimental Groups

	Experimental r	Control r
ROK Pre - I Gain	.17	-.50
ROK Pre - II Post	-.61	.12
ROK Post - II Post	-.53	.08

The relationships of the ESB scores to the pupil scores on the three goals are shown in Table 48. There were no significant correlations in the overall group.

Table 48

6th Grade Teacher to Class Correlations: ESB

	VII			I			II		
	Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
ESB Pre	.20	.28	.13	.21	.19	-.08	.12	.06	-.04
ESB Post	.20	.21	.26	.15	.28	.07	-.03	.06	.10
ESB Gain	-.08	.08	.22	-.01	.29	.23	-.14	-.01	.13

There were three significantly different correlations between the experimental and control groups as shown in Table 49. In the control group, teachers with a high gain in traditionalism had pupils who increased on Goal I. In the experimental group, teachers with a low gain or loss in traditionalism had pupils who increased on Goal I. This would be desirable considering the aims of the study.

Table 49

Significant Z on ESB to Class Correlations
Between Experimental and Control Groups

	Experimental r	Control r
ESB Post - II Post	.49	-.13
ESB Gain - I Gain	-.24	.38
ESB Gain - II Post	.57	-.17

The Goal II posttest exhibited significantly different relationships between the groups for both the ESB posttest and the ESB gain scores. In the experimental group, a high Goal II posttest was associated with a high teacher posttest and high gains in traditionalism. In the control group, these relationships were low and slightly negative.

Teacher attitude toward the open-democratic classroom was correlated with the class mean scores on the three goals. These coefficients are reported in Table 50. There were four significant correlations in the overall group. The teacher pretest score was negatively related to the pupil gain score on Goal I. Thus, a high teacher pretest would not predict a gain in pupil self-concept. The teacher gain on ESA correlated significantly and positively with Goal I gain, Goal II posttest and Goal II gain. Teachers who gained in attitude toward the open-democratic classroom over the school year had pupils with considerable growth in self-concept and tolerance.

Table 50

6th Grade Teacher to Class Correlations: ESA

	VII			I			II		
	Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
ESA Pre	.01	-.15	-.23	.10	-.34	*-.38	.08	-.15	-.23
ESA Post	-.08	-.10	-.04	-.05	-.02	.04	-.09	.25	.31
ESA Gain	-.10	.02	.17	-.16	.30	* .41	-.17	* .43	**.56

*p > .05
**p > .01

On the ESA measure, there were several differences between the experimental and control groups as shown in Table 51. The ESA pretest related differently between the two groups with the Goal I pretest and the Goal I gain score. With the Goal I pretest, the control group had a high, positive correlation and the experimental group had a low, negative correlation. With the Goal I gain score, the control group had a high, negative correlation and the experimental group had a low, positive correlation. In the control group at the beginning of the year, the high ESA teachers had high Goal I pupils, but it was the low ESA teachers whose pupils had the greater gains on Goal I. The coefficients in the experimental group were low, but it appears that the lower ESA teachers had higher Goal I pupils and the higher ESA teachers made greater gains in Goal I. Their differences may be accounted for by a tendency for regression to the mean at least in the experimental group.

Table 51

Significant Z on ESA to Class Correlations
Between Experimental and Control Groups

	Experimental r	Control r
ESA Pre - I Pre	-.26	.44
ESA Pre - I Gain	.16	-.76
ESA Post - II Pre	-.47	.31
ESA Post - II Post	-.55	.58
ESA Gain - I Pre	.19	-.44
ESA Gain - I Gain	-.15	.71
ESA Gain - II Pre	-.69	.19
ESA Gain - II Post	-.17	.60

On the ESA posttest there was a significant difference between groups for the Goal II pre- and posttest. The control group had a strong positive correlation between ESA posttest and the Goal II pretest which became larger with the Goal II posttest. This was reversed for the experimental group for which the Goal II pretest showed a strong negative relationship with the ESA posttest and the Goal II posttest showed an even larger negative relationship. In the control group, teachers with a high ESA posttest had pupils with high Goal II pretests and the relationship increased with the Goal II posttest. In the experimental group, teachers with a high ESA posttest had pupils with low Goal II pretests and this relationship became even more pronounced on the posttest.

There were four significantly different relationships between groups on the ESA gain scores. In the control group, teachers with high ESA gains had pupils with low Goal I pretest and high Goal I gain. There was no real

relationship of ESA gain to Goal I in the experimental group. In the control group, teachers with high ESA gain had pupils with high Goal II posttest but exhibited no real relationship to the Goal II pretest. In the experimental group, teachers with high ESA gain had pupils with a low Goal II pretest but exhibited no substantial relationship to Goal II gains.

7. Teacher Variables and 5th Grade Pupil Scores

The teacher attitude scores were correlated with the class mean scores to assess the relationships as shown in Table 52. In the 5th grade, four of the pupil pretests were significantly related to teacher scores on the ESB pretest. This is an unexpected finding since no significant relationships are expected where the teachers and pupils had been together for less than three weeks.

The Rokeach pretest correlated significantly with the pupil posttest on both Word Meaning and Language subscales of the Stanford Achievement Test. This suggests that higher scores on these two scales are associated with pupils of teachers who are less dogmatic at the start of the year.

The ESA pretest correlated significantly with the pupil posttest on both Creative Attitude and Appreciation of Human Accomplishment. This suggests that more positive attitudes in these two areas are associated with pupils of teachers who prefer the open-democratic classroom.

The teacher variables of Sex and Teaching Experience were correlated with the pupil class mean scores. The significant correlation coefficients are reported in Table 53.

Teacher Sex related significantly to the pretests of Arithmetic Computation and the posttest of Arithmetic Concepts.

Teacher Experience related significantly to the pretests of Citizenship, Health, Creative Attitude, Language, Arithmetic Computation and

Table 52

Significant Correlations of
Teacher Tests to Pupil Tests

ESB Pretest to Language Pretest	*0.3816
ESB Pretest to Arithmetic Concepts Pretest	*0.3593
ESB Pretest to Citizenship Pretest	*0.3582
ESB Pretest to Vocational Maturity Pretest	*0.3523
Rokeach Pretest to Word Meaning Posttest	*0.3484
Rokeach Pretest to Language Posttest	*0.3594
ESA Pretest to Creative Attitude Posttest	*0.3575
ESA Pretest to Appreciation of Human Accomplishment Posttest	*0.4404

$*_{.05}\ r_{30} = 0.349$

Table 53

Significant Correlation of Teacher
Characteristics With Pupil Variables

Teacher Sex to Arithmetic Computation	Pretest	*0.4331
Teacher Sex to Arithmetic Concepts	Posttest	*0.3526
Teacher Experience to Citizenship	Pretest	**0.4736
Teacher Experience to Health	Pretest	*0.4359
Teacher Experience to Creative Attitude	Pretest	*0.3607
Teacher Experience to Language	Pretest	*0.4105
Teacher Experience to Arithmetic Computation	Pretest	*0.4277
Teacher Experience to Arithmetic Applications	Pretest	*0.4278
Teacher Experience to Creative Attitude	Posttest	*0.4310
Teacher Experience to Arithmetic Computation	Posttest	*0.3846
Teacher Experience to Arithmetic Concepts	Posttest	*0.4278
Teacher Experience to Arithmetic Application	Posttest	*0.4308

$*_{.05}\ r_{30} = 0.349$ $**_{.01}\ r_{30} = 0.449$

Arithmetic Applications. However, as was previously stated, pretest correlations tend to be rationally meaningless.

Teacher experience related significantly to the posttests of Creative Attitude, Arithmetic Computation, Arithmetic Concepts and Arithmetic Applications. This suggests that a positive creative attitude and high mathematical achievement of pupils are associated with more experienced teachers.

8. Teacher Tests Interrelated

The interrelationship of the teacher tests is depicted by the correlation matrix in Table 54.

It can be seen in Table 54 that the three tests related in the expected manner. Neither Rokeach nor ESB were efficient predictors of ESA gain. The best predictor of ESA gain was the ESA pretest. Interestingly enough, ESB gain is predicted by the Rokeach pretest but not the ESB pretest, and the Rokeach is predicted by the ESB pretest but not the Rokeach pretest.

Table 54

Intercorrelation of Teacher Tests for 6th Grade

	ROK			ESB			ESA	
	Pre	Post	Gain	Pre	Post	Gain	Pre	Post
ROK Post	** .79							
ROK Gain	-.22	* .43						
ESB Pre	*-.35	**-.56	*-.37					
ESB Post	**-.67	**-.81	-.29	** .63				
ESB Gain	**-.68	* .43	-.01	-.05	** .71			
ESA Pre	** .69	** .73	.14	*-.37	**-.64	**-.58		
ESA Post	** .57	** .64	.18	**-.55	**-.62	*-.36	** .54	
ESA Gain	-.03	.02	.07	-.26	-.09	.15	*-.35	**.60

There were two significant differences between the correlations of the experimental and control groups both of which were in magnitude, not direction. The Rokeach pretest correlated significantly higher with the Rokeach posttest in the control group than in the experimental. The ESB pretest correlated significantly higher with the ESB posttest in the experimental group than in the control.

E. Program

At the end of the last meeting, the teachers evaluated the various facets of the program. The total evaluation is presented in Appendix E.

The ranking of the sessions by the teachers revealed few trends. Neither small nor large group presentations were consistently ranked higher. The temporal sequence of sessions did not seem to have an effect. The only suggested effect was related to the emphasis on theory. Sessions that emphasized theory were ranked lower.

The use of a newsletter was apparently popular with the teachers. All of the teachers indicated that they read it and found it interesting; nearly all of the teachers found it useful. The feedback information printed every week was considered helpful by all but four teachers.

The materials which were disseminated were predominantly rated as interesting and useful.

A preference for small groups was indicated, along with a desire for more audio-visual materials.

The most important fact to emerge from the final evaluation was that 32 of the teachers had used ideas or materials presented in the program.

At the end of each session the teachers rated that session. The results of these ratings are presented in Tables 55 and 56. In an effort to improve the effectiveness of the ratings, the form was modified three times resulting in the information reported in Table 56.

Table 55

Feedback Tally - First Three Sessions

I. Value Training		II. Child Development	
Thought Provoking	20	Stimulating	8
Stimulating	17	Thought Provoking	5
Outstanding	7	Outstanding	3
Exciting	5	Average	1
		Needs Improvement	1
		Dull	1

III. Teacher-Student Interaction	
Thought Provoking	8
Stimulating	4
Average	4
Needs Improvement	4
Dull	3
Waste of Time	2
Not Worthwhile	1
Confusing	1

Table 56

Feedback Tally - Last Six Sessions

	IV. Teacher-Student Interaction	V. Perception	VI. Communication (1)	VII. Communication (2)	VIII. Classroom Environment	IX. Student Creativity
Interest						
Very Interesting	17	9	7	6	6	8
Interesting	1	5	7	12	8	5
So-So	0	0	0	5	5	1
Uninteresting	0	0	0	0	1	0
Usefulness						
Looks Good; I'll Try it	11	14	12	7	5	7
I Could Use It	2	0	3	12	9	7
Sounds Good But . . .	4	0	0	2	5	0
Not Appropriate	0	0	0	1	0	0
Speaker						
Engrossing	18	9	12	7	9	7
Average	0	5	2	11	9	7
Dull	0	0	0	0	1	0

The session ratings display a basically favorable assessment of the program. They also indicate a potent relationship between the acceptance of the speaker and the evaluation of the session.

After the program was ended, a subjective evaluation was requested from the teachers. The comments took two forms: suggested improvements and an evaluation of the participants. The suggested improvements included moving the sessions to a different location and an earlier time, having more demonstrations and smaller group discussions, opening the program to primary grade teachers, having longer meetings with a shorter interval between meetings and including administrative personnel. The complete comments are reported in Appendix F-1.

The comments which dealt with the participants were more contradictory and less useful, showing no consensus. The complete comments are reported in Appendix F-2.

V. Discussion

A. 6th Grade Pupils

For all three variables measured--Self-Concept, Understanding Others and Creativity--there were no significant differences between the control and experimental groups. Both the control and experimental group mean scores increased over the period of the study. This indicates that the treatment did not affect the 6th grade pupils.

When the eight schools' mean scores are compared, it is readily apparent that there are differences. The differences in Understanding Others on the pretest had almost totally disappeared on the posttest. This could be the result of a regression effect. For Creativity there seemed to be definite school building effects. A t-test between the pretest scores was not significant which indicates equivalence in the fall. However, a t-test between the gains of the highest gaining and lowest gaining buildings was significant beyond the .05 level. Thus, it seems readily apparent that the magnitude of growth in creativity was relative to some element(s) which differs from school to school. Further, the highest scoring building was highest on the pre- and posttest while the lowest three schools were lowest on both tests. Creativity is somehow connected to the school as a unit. One would have to isolate and manipulate the variables that differ from school to school if one were seeking to address creativity as an educational goal.

When the Self-Concept data are examined by schools, however, the differences are readily apparent. While the pretest scores are different, the difference is not statistically significant. This means that the schools were statistically equivalent in terms of Self-Concept in the 6th grade at the beginning of the year. This equivalence would be an expected result of the

balancing plan implemented by the district. However, a t-test between the mean gain scores of the highest (+2.15) and lowest (-1.68) schools was statistically significant beyond the .05 level. The growth cannot be said to have been equivalent. For some reason(s) the 6th grade pupils in one school regressed in Self-Concept while those in a second school progressed.

The data were also examined by classes. The variation in Self-Concept is even more evident for classes than it was for buildings. One-third of the 6th grades did not display any gains on the Self-Concept measure from the pretest to the posttest. Although Self-Concept is an educational goal of the district, one-third of the 6th grades did not attain any growth toward this goal.

As in the building scores there was little variation in the class scores on the measure of Understanding Others. Only 5 of 33 grade 6 classes failed to demonstrate growth in Understanding Others. This educational goal is particularly pertinent to a district reorganized on the basis of integration. In terms of this goal, it would seem that the integration plan was successful in 28 out of 33 grade 6 classes.

Any mathematical comparison of class scores on Creativity is greatly affected by the fact that one class gained over 14 points. It is evident, however, that there was growth across the 6th grades generally. Only 4 of 33 classes failed to demonstrate gains.

Across all three goals the gains in class scores for the control group displayed a great deal more variation than gains for the experimental group. This suggests that the experimental treatment operated to inhibit extreme gains and losses. Whether such a function is desirable is an intriguing question.

The correlational data revealed several interesting relationships. Creativity and Self-Concept were highly related, suggesting that in program planning both variables should be considered simultaneously. A program which allows a pupil to be creative should enhance his Self-Concept, and vice versa.

The variable Understanding Others related in an unusual manner. The Understanding Others pretest did not relate to its own posttest, indicating lack of stability. This pretest did relate significantly to pretests of Creativity and Self-Concept, and the Understanding Others posttest related significantly to the posttests of both other variables. The only relationship significant from pretest to posttest was the Creativity pretest with the Understanding Others posttest.

The pattern of unstable relationships connected with Understanding Others may be an effect of the integration plan during its initial year. The relationships are under constant stress from the heterogeneity of the student body. The ambiguity of the relationships is even more logical when one considers that the measure is assessing attitude toward others who are different. In this district the exposure to "different others" was not only an initial experience for many but was also a total experience throughout the district. It is reasonable to find that the measure of pupil creativity was an effective predictor if one accepts the concept of flexibility as a major facet of creativity.

The correlational data was further confounded by the significant differences between the experimental and control groups. The experimental treatment apparently operated to strengthen the relationship of Creativity to Self-Concept and Understanding Others, an increase which did not appear in the control group.

B. 5th Grade Pupils

For all eight scales of the Stanford Achievement Test used in this study, there were no significant differences between the control and experimental groups. For all nine measures of the Educational Quality Assessment Battery, there were no significant differences between the control and experimental groups. This indicates that the treatment did not affect 5th grade pupils' achievement or attitudes.

The fact that no differences were found across these several measures led the experimenters to examine the data for building effects. It is readily apparent that there are significant differences among the eight buildings. The schools were statistically, significantly different on all but one of the achievement measures and all but two of the attitude measures at the beginning of the school year. The data on teacher sex and experience supports the pupil data in indicating an inequality among buildings. The conclusion to be drawn from this data is that the eight buildings cannot be spoken of as academically equal in the fall of 1970.

The inequity among the buildings was maintained on those variables measured by the eight scales of the Stanford Achievement Test. It was also maintained in the affective areas of Self-Concept, Citizenship, Creative Attitude and Creative Ability.

In the area of pupil Preparation for a Changing World, the buildings were not significantly different in the fall, but by spring the differences had increased in magnitude enough to be statistically, significantly different.

It is a much more desirable finding that in the areas of Understanding Others, Attitude Toward School and Vocational Maturity, the schools were

significantly different in the fall but not in the spring. This is particularly favorable since Understanding Others is a measure of attitude toward other ethnic groups and, thus, implicitly a goal of a desegregation plan. The universal gains in attitude toward school were also desirable within the context of goals set by the school district.

The failure to attain significant differences between the experimental and control groups may be attributable to the initial differences between buildings. These would result in large differences within rather than between the groups.

The relationships among 5th grade pupil variables were tested by correlational techniques. The preponderance of significant relationships between the achievement and attitude measures reflects the considerable influence of the affective domain in the educational sphere.

The pretest of Understanding Others related significantly to the posttest of Creative Attitude. The pretests and posttests were also related. It would seem reasonable that pupil tolerance would relate to creative attitude.

The relationships of pupil race to five scales of the Stanford Achievement Test were significant in the spring but not the fall. Thus, it would appear that the academic programs were more effective with the white than the black pupils. The lack of significant correlations on the attitude measures suggested that this effect is purely cognitive and not affective.

C. Teachers

The experimental treatment did not have a significant effect on the 5th or 6th grade teachers. At both grade levels there was a trend away from

dogmatic attitudes as measured by the Rokeach Scale in both the experimental and control groups.

Although the difference was not statistically significant, the 5th grade control group displayed a loss on both of the Education Scales (ESA and ESB) which did not appear in the experimental group. This suggests that the experimental treatment had a buoying effect which maintained the teachers' attitudes over the year. While it was originally desired that the program change teacher attitudes, one must consider the worth of such programs if they succeed in preventing expected losses.

The 6th grade teachers reacted in the hypothesized manner. If the program had been intensified by the suggestions made in the teacher evaluation of the program, the magnitude of the differences between experimental and control groups might well have reached statistical significance.

The relationships between socioeconomic data and dogmatism were not unexpected. The older, higher paid teachers tend to be more dogmatic. Not a great deal can be said about this except that it pinpoints a group for intensified action. It suggests that effort should be exerted to reverse this apparent trend for increase in dogmatism as experience increases (assuming dogmatism is viewed as undesirable.)

The negative shift in the relationship of dogmatism to area of residence serves to pinpoint an area of concern. The suburban teacher tended to be less dogmatic than the urban teacher initially. By the end of the year the suburban teacher had not changed but the urban teacher had grown much less dogmatic. The concern is whether the suburban teachers could have become less dogmatic. If the suburban teachers, as a group, were very anti-dogmatic, we might have expected little change. But, if there was room for growth, why did that growth not occur? The data on the urban teachers suggests

that the integration plan has a positive effect on teachers residing in the city.

The data from the Education Scales did not relate in any unusual manner with socioeconomic status. Since sex and experience related significantly with traditionalism, one could hypothesize that there is a basis for forming the faculty of a school to encourage or discourage change. A faculty which is predominantly older and female will be more traditionally oriented.

The data displayed in Table 25 of the Results section deals with significant differences between the correlations for the experimental and control groups. This data is particularly difficult to interpret. In the pretest the experimental teachers who were more traditional and dogmatic tended to live in high SES neighborhoods. In the control group they lived in low SES neighborhoods. Why this difference exists is open to conjecture.

In the experimental group, higher neighborhood SES predicted high gains in traditionalism while in the control group higher neighborhood SES predicted low gains in traditionalism. It was thought that this revealed a negative reaction to the program. The higher SES group would predominantly be the more experienced teachers and the suburban teachers previously mentioned. If the program was in opposition to growing traditional educational attitudes, it could serve either to combat or to further provoke gains in traditionalism. In this case, the program served to provoke this unfavorable growth. However, this may be nothing more than a regression effect. If it is a regression effect, then one is hard put to explain the significant differences between the control and experimental groups.

The experimental and control groups also had significantly different correlations on gain in attitude toward the open-democratic classroom with

age and type of undergraduate institution. In the experimental group the younger and nonuniversity teachers were more responsive to the program's emphasis on the open-democratic classroom. In the control situation, however, the older teachers and university-trained teachers were more likely to gain in attitude toward the open-democratic classroom. It is reasonable to conclude that a supportive program is useful to assist younger and nonuniversity teachers in their educational development.

The control and experimental teachers also had significantly different relationships between dogmatism gains and teacher sex and area of residence. Female teachers in the control group and male teachers in the experimental group tended toward gains in dogmatism. The possibility that the male teachers were demonstrating resistance to the program raises the question of how you select teachers for a program. The male teachers in the control group did not tend toward large gains in dogmatism. Thus, it would seem that the male teachers were better off without the experimental treatment.

Just as teacher sex made a difference, area of residence showed a statistically significant difference. In the experimental group the urban teachers tended to grow away from dogmatism, while in the control group suburban teachers displayed this tendency. This, as well as the previously cited data on teacher residence, led to the conclusion that the experimental program affected the urban but not the suburban teachers. It is also apparent from the control urban teachers' behavior that urban teachers would not normally develop along these lines.

Teacher Job Satisfaction

For the total group of teachers, dogmatism, traditionalism and attitude toward the open-democratic classroom were generally unrelated to job satis-

faction. Two exceptions were significant correlations between (1) dogmatism and perception of ideal advancement policy and (2) gains in open-democratic attitude and perception of the job as exciting and rewarding. The first correlation means that as dogmatism increased the desire for merit-based advancement increased. While this relationship existed at the beginning of the year, it was not present at the end, suggesting that events during the year had affected this particular relationship. Further analysis indicated that the control group alone caused this relationship to appear. It was not present in the experimental group. The second correlation means that teachers who gained in their attitude toward the open-democratic classroom also found their job exciting and rewarding. This finding suggests a very practical reason (teacher satisfaction) for a district to encourage the open-democratic attitude.

There were four significantly different relationships between variables for the control and experimental groups. In the fall testing, control group traditional attitudes indicated dissatisfaction with the job, which was not true in the experimental group. Also, in the fall testing dogmatic attitudes were associated with ideal advancement policy based on merit for the control group only. The groups were not significantly different in the spring. The control group relationships apparently weakened, contrary to the logical expectation that changes would be associated with the experimental group.

In the control group gains in traditional attitudes were associated with future plans to rise within the educational hierarchy. Conversely, in the experimental group gains in anti-dogmatic attitudes were associated with future plans to rise within the educational hierarchy. The experimental treatment apparently affected the outlook of the teachers.

It encouraged anti-dogmatic, open attitudes and presented them as feasible within the traditionally conservative educational structure. The data seem to indicate that the experimental teachers who gained in anti-dogmatic attitudes were able to perceive themselves as compatible with ascendant movement within the hierarchy. In contrast, control group teachers who perceived themselves as ascendant increased in traditional attitudes. In the contemporary, urban school situation, the association of flexible attitudes and professional growth is very desirable.

The data relating job satisfaction to socioeconomic status indicate that the higher paid, experienced teachers are more satisfied than the newer teachers. However, these same data indicate that these higher paid, experienced teachers do not feel involved with the school's activities.

Job satisfaction was found to be highly related to classroom practices. The teacher who is satisfied and feels he has high professional volition uses innovative practices regularly. However, teachers who prefer a merit-based advancement system are not innovative teachers. This contradiction is somewhat clarified in Table 32 where it can be seen that the perception of ideal advancement has no relationship to the more specific elements of job satisfaction.

The interrelationships of the specific elements of job satisfaction seem to indicate that the satisfied teacher feels independent, involved, influential and valued.

Classroom Practices

The results clearly support the generalization that a closed, traditional attitude is not associated with innovative practices while the open, anti-dogmatic attitude is. If innovative practices are a significant goal, then steps should be taken to reinforce appropriate attitudes among the staff.

As shown in Table 34 of the Results chapter, there were significant differences in the relationship of teachers' attitudes to classroom practices between experimental and control groups. In the experimental group, teacher tendency toward the open-democratic classroom is directly related to the use of learning-games and pupils as tutors. Also in the experimental group, teacher desire to utilize pupil evaluation of classroom climate and other innovations indicated a decrease in traditional attitudes. In the control group none of these relationships were significant. These correlations are consistent with each other and indicate further differences between the control and experimental groups.

Grade Level Differences

There were 15 significantly different correlations of teacher variables between the 5th and 6th grades.

Four significantly different relationships between job satisfaction and the teacher tests were found for the 5th and 6th grades. Initially dogmatism was an indicator of job satisfaction in the 6th grade but gains in anti-dogmatism came to be important. Also, in 6th grade gains in attitude toward the open-democratic classroom were associated with perceiving the district as basing advancement on merit rather than on such considerations as seniority. In the 5th grade, these relationships were negative rather than positive.

There were also four significantly different correlations of classroom practices to teacher tests in the two grade levels. In the 6th grade the teachers seemed to utilize innovative practices in spite of dogmatic attitudes which was not true of the 5th grade teachers.

Four of the correlations of socioeconomic data to teacher tests were significantly different in the two grade levels. These differences lead to

the conclusion that a university background, higher status neighborhood and higher housing cost were related to gains in traditionalism and losses in attitude toward the open-democratic classroom for 5th grade but not for 6th grade teachers. In the 6th grade, higher status neighborhood and higher housing cost were related to losses in traditionalism and gains in attitude toward the open-democratic classroom. Also, in the 6th but not the 5th grade, age and salary were positively related to dogmatism. It was felt that these differences raised serious doubts concerning the pooling of programs aimed at 5th and 6th grade teachers.

D. Teacher Attitude and Pupil Scores

1. 6th Grade

For the total 6th grade sample there were no significant relationships between pupil and teacher pretest scores. This is both expected and desirable.

There was one significant relationship among the Rokeach tests and the pupil posttests. The teachers' fall score on the Rokeach Dogmatism Scale correlated significantly with the pupil spring score on the creativity test. This indicates that the more dogmatic a teacher is at the beginning of the year, the higher the pupil creativity score will be in the spring. This may reinforce the old maxim that a teacher should begin the year with a very tough attitude.

Three correlations were significantly different for the control and experimental groups. In the control group, high pupil gain on the Self-Concept measure was associated with a high score on the Dogmatism pretest. In the experimental group, a high posttest score on the measure of Understanding Others was associated with a high score on the Dogmatism pretest and posttest. For some reason, teacher dogmatism related to pupil Self-Concept in the control group but to Understanding Others in the experimental group.

The measure of traditionalism, ESB, did not correlate significantly with any of the 6th grade pupil measures. However, in the experimental group loss in traditional attitudes correlated significantly with a high pupil gain on the Self-Concept measure; in the control group, gain in traditional attitudes correlated significantly with high pupil gain on the Self-Concept measure. This was considered a desirable finding since the study was attempting to reinforce the concept that nontraditional attitudes can be successfully employed in the teaching situation. The experimental teachers who exhibited a loss of traditional attitudes had pupils who gained in Self-Concept. Since this was not true in the control group, we can conclude that the study did accomplish its purpose somewhat. However, in the experimental group both a high posttest and a high gain in traditional attitude were associated with a high pupil posttest on Understanding Others. This reveals a basic conflict. If one leans toward traditional attitudes, Self-Concept is hindered but tolerance is helped. If one leans away from traditional attitudes, Self-Concept is helped but tolerance is restricted. It would seem that this conflict must be faced and resolved by every teacher.

Teacher attitude toward the open-democratic classroom correlated significantly with four pupil measures. A high teacher pretest is related to a low gain in pupil Self-Concept. However, a high teacher gain is associated with high gains in both Self-Concept and tolerance as well as a high posttest in tolerance. The growth of teacher attitude toward the open-democratic classroom is associated with some very desirable pupil gains. The ESA data are consistent whereas the ESB data are inconsistent in terms of Self-Concept versus tolerance. The open-democratic attitude is essentially a positive factor for both pupil variables, while the traditional attitude is ambivalent requiring choice of objectives.

The negative association of the teacher pretest with pupil Self-Concept supports the earlier finding in the Rokeach data that the teacher should begin the year with a very firm attitude. Further, the positive relationship with teacher gain suggests that the second part of the maxim is accurate. As the year passes, the teacher should move toward an open attitude.

There were more significant differences between the control and experimental groups on the ESA than on either the Rokeach or ESB data. The actual configuration of coefficients for ESA and Self-Concept is an excellent example of the regression effect which minimizes our interest in the coefficients. The data for tolerance, in contrast, were very clearly significant.

The teacher ESA posttest, attitude toward the open-democratic classroom, was negatively related to tolerance in the experimental group pretest and positively related in the control group. This is further reinforced by the differences in gain score correlations. A high teacher gain on the ESA is associated with low pupil pretest scores in the experimental group while there is a slight tendency toward high pupil pretest scores in the control group. A high teacher gain is associated with high pupil posttest scores in the control group but not in the experimental group. Thus, it seems very clear that teacher attitude toward the open-democratic classroom was favorably associated with pupil attitude toward others in the control group and unfavorably associated with pupil attitude toward others in the experimental group. If the development of a positive attitude toward others is a goal, treatment other than the experimental treatment should be planned.

2. 5th Grade

For the total 5th grade sample there were four significant relationships between pupil and teacher pretests. All four correlations were with the ESB pretest. This may indicate that the traditional closed classroom has an

earlier impact upon the pupils. It also could be a random factor due solely to chance.

There were two significant relationships among the Rokeach tests and the pupil posttests. The teachers' fall scores correlated significantly with the spring scores of the Language and Word Meaning scales of the Stanford Achievement Test. This could reflect a tendency of the anti-dogmatic teacher to encourage verbal interaction resulting in superior language and vocabulary performance.

Teacher attitude toward the open-democratic classroom correlated significantly with two pupil measures. A high, positive teacher attitude toward the open-democratic classroom in the fall was associated with high pupil scores in Creative Attitude and Appreciation of Human Accomplishment in the spring. This result is perfectly in line with the theory underlying this study. It supports the position that the open-democratic classroom is beneficial to pupil creative attitude.

In addition to the teacher test data, the variables of Teacher Sex and Teacher Experience were found to relate to pupil variables. Female teachers are associated with pupil success in Arithmetic Concepts. More experienced teachers are associated with pupil success in mathematics and a higher pupil creative attitude. It seems reasonable that more experienced teachers would be more effective mathematics instructors. It is unexpected to find that the newer teachers had less positive influence on pupil creative attitude than the more experienced teachers.

In light of these relationships, the previously identified staffing differences among buildings take on added impact.

E. Program

The in-service program was well received by the teachers. All but one of the teachers experimented with ideas or materials presented.

The effectiveness of the session appeared to be directly related to teacher acceptance of the speaker. In planning an in-service program, the most crucial element may be the choice of speakers. Ability to communicate with the specific audience is a more important criterion for speaker selection than knowledge of a topic.

The use of a newsletter was a successful addition to the program.

Programs such as this one should be held early in the day, located in congenial quarters, and emphasize small group interaction. Such programs should be scheduled for the early part of the school year so that there is time for the effects of the program to be seen.

F. Summary

6th Grade Pupils

(1) There were no significant differences between experimental and control groups in Creativity, Self-Concept or Understanding Others.

(2) Between schools and classes, however, there were significant differences in Creativity and Self-Concept.

5th Grade Pupils

(1) There were no significant differences between experimental and control groups in the eight achievement or nine attitude measures.

(2) Between schools, however, there were significant differences on 16 of the 19 measures on the pretest and 13 of 17 on the posttest.

(3) Pupil race related significantly to several posttest achievement scores.

Teachers

(1) There were no significant differences between experimental and control teachers on the attitudes measured in this study.

(2) Factors such as teacher residence, background and education, which are indicative of socioeconomic status, were significantly related to teachers' attitudes toward the classroom.

(3) Job satisfaction was significantly related to teacher classroom attitudes.

(4) Innovative classroom practices were negatively associated with attitudes favoring traditionalism.

(5) Teacher Sex and Experience were found to be related to several pupil variables. Both Teacher Sex and Experience were found to be unbalanced among buildings.

Teacher to Pupil Data

(1) In the 6th grade, greatest pupil growth in Creativity, Self-Concept and Understanding Others occurred in classes where teachers demonstrated a closed-traditional attitude at the beginning of the year and developed a more open-democratic attitude during the school year.

(2) In the 5th grade, greatest pupil growth in Language and Word Meaning occurred in the classes where teachers demonstrated an anti-dogmatic attitude.

(3) In the 5th grade, greatest pupil growth in Creative Attitude and Appreciation of Human Accomplishment occurred in classes where teachers demonstrated a preference for the open-democratic classroom.

Program

Although the workshop programs were generally well received, the participants submitted many valuable suggestions for possible improvements in future in-service programs.

Footnotes

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7. M. S. Vaughan, "Creativity and Creative Teaching," School and Society, 97:2317 (April 1969), p. 230.

8. Ibid., p. 231.

9. Ibid., p. 232.

10. 1970 White House Conference On Children, op. cit., p. 12.

11. Ibid., p. 24.

12. Ibid., p. 23.

13. Ibid.

14. Ibid., p. 18.

15. P. B. Campbell (1971), op. cit.

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29. Ibid., p. 14.

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Appendix A

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Appendix B

Weekly Rating Form

I would rate this session as follows:

1. ( ) ( ) ( ) ( ) ( )

Very Interesting	Interesting	So-So	Uninteresting	Totally Uninteresting

2. ( ) ( ) ( ) ( ) ( )

Looks good; I'll try it soon.	I could use it.	Sounds good but I would have to do a lot to translate it into my classroom situation.	I don't see it as appropriate or usefull.	Useless for my classroom.

3. ( ) ( ) ( )

Speaker was engrossing	Speaker was average	Speaker was dull

4. In my present teaching situation, I could increase the opportunities for my students to behave creatively by_____

5. I wonder why_____

6. Comments on this session_____

Appendix C - 1

6th Grade Class Means - Control Group

Teacher	Goal I			Goal II			Goal VII		
	Pretest	Posttest	Gain	Pretest	Posttest	Gain	Pretest	Posttest	Gain
1	32.35	27.59	-4.76	32.0	29.2	-2.80	157.2	159.1	1.90
2	35.56	33.18	-2.38	33.9	32.7	-0.80	163.7	163.2	-0.50
3	36.67	35.24	-1.43	31.3	31.4	0.10	154.6	162.5	7.90
4	34.50	34.68	0.18	31.3	33.6	2.30	153.8	153.4	-0.41
5	32.33	31.90	-0.43	31.5	34.8	3.25	148.2	162.3	14.13
6	32.69	34.46	1.77	31.9	32.1	0.20	163.0	167.7	4.72
7	32.00	31.30	-0.70	32.7	33.4	0.70	159.7	163.0	3.26
8	31.26	35.79	4.53	27.8	33.6	5.80	154.1	158.8	4.75
9	35.26	35.70	0.44	33.3	35.4	2.06	163.9	172.6	8.70
10	31.10	33.67	2.57	27.3	33.3	6.00	160.5	162.9	2.42
11	32.50	32.64	0.14	30.6	34.1	3.50	159.4	165.4	6.00
12	36.68	39.06	2.38	30.3	33.4	3.17	161.7	165.4	3.70
13	29.45	34.45	5.00	31.4	31.4	0	153.0	159.0	6.00
14	35.30	36.40	1.10	31.3	32.1	0.80	154.1	154.2	0.10
15	33.40	30.30	-3.10	32.3	33.9	1.60	150.1	154.7	4.60
16	33.10	35.10	2.00	33.8	33.2	-0.60	157.8	166.4	8.60
17	32.90	33.20	0.30	31.5	32.8	1.30	152.9	156.7	3.80

Appendix C - 2

6th Grade Class Means - Experimental Group

Teacher	Goal I			Goal II			Goal VII		
	Pretest	Posttest	Gain	Pretest	Posttest	Gain	Pretest	Posttest	Gain
1	33.2	35.3	2.1	32.4	34.7	2.3	163.0	166.2	3.2
2	32.6	35.8	3.2	34.8	33.5	-1.3	160.9	162.7	1.8
3	34.6	32.5	-2.1	34.2	32.4	-1.8	159.5	161.1	1.6
4	38.9	39.5	0.6	33.8	34.3	0.5	165.5	174.0	8.5
5	32.7	34.8	2.1	33.2	33.4	0.2	159.8	162.5	2.7
6	33.7	31.6	-2.1	31.9	33.4	1.5	161.6	164.4	2.8
7	30.8	29.8	-1.0	29.5	31.8	2.3	152.0	157.6	5.6
8	34.1	35.2	1.1	31.8	33.1	1.3	154.9	161.8	7.1
9	31.4	30.9	-0.5	32.6	34.1	1.5	159.4	155.3	-4.1
10	34.9	34.1	-0.8	31.1	32.7	1.6	167.1	167.3	0.2
11	34.3	36.0	1.7	28.5	31.6	3.1	149.4	157.6	8.2
12	31.4	34.3	2.9	30.3	31.4	1.1	152.2	148.4	-3.8
13	32.2	34.0	1.8	29.4	33.9	4.5	150.5	158.4	7.9
14	29.6	30.2	0.6	33.1	33.4	0.3	155.3	158.2	2.9
15	34.1	34.8	0.7	32.7	33.0	0.3	160.2	167.3	7.1
16	29.9	31.3	1.4	31.8	32.0	0.2	160.7	166.0	5.3

Appendix D

Summated Teacher Data

1. Sex

		f
A.	Male	24
B.	Female	54

2. Marital Status

A.	Single	33
B.	Married	45

3. Age

	Years	
1	20-24	29
2	25-29	10
3	30-34	7
4	35-39	3
5	40-44	4
6	45-49	6
7	50-54	6
8	55-59	7
9	≥ 60	5

4. Family Size

	Number of Dependents	
1	0	40
2	1	21
3	2	8
4	3	3
5	4	3
6	5	1
7	6	1
8	7	0
9	8	1

5. Experience

	Years	
1	< 1	23
2	1	10
3	2	7
4	3-05	13
5	6-10	8
6	11-15	4
7	16-20	2
8	≥ 20	11

6. Undergraduate Institution

		f
A.	No degree	10
B.	State college	42
C.	Liberal arts or university	26

7. Graduated From High School

A.	Another country	0
B.	U. S. possession	0
C.	Another state	25
D.	In Pa. but outside this area	35
E.	In this area	18

8. Spent Most of Life

A.	Another country	0
B.	U. S. possession	0
C.	Another state	25
D.	Pa., not Harrisburg Area	27
E.	Harrisburg Area	25

9. Occupation of Guardian

A.	Unskilled	2
B.	Semi-skilled	13
C.	Skilled, craftsman, foreman	21
D.	Farmer	3
E.	Salesman, clerical similar white collar	10
F.	Owner of small business	6
G.	Teacher	4
H.	Official of large enterprise	12
I.	Professional	8

10. Present Residence

A.	Rural	5
B.	Urban	33
C.	Suburban	40

11. Type of Community

		f
A.	Industrial	- 7
B.	Commercial	- 7
C.	Residential	- 60
D.	Agricultural	- 3

12. Adequate Housing Requires

A.	High income ($9,000+)	- 23
B.	Moderate income ($6,000 - 9,000)	- 49
C.	Low income ($6,000-)	- 5

13. Vocation of Neighbors

A.	Professional	- 21
B.	Semi-professional	- 49
C.	Labor	- 6
D.	Farmer	- 0

14. Characteristic Which Actually Counts Most in Gaining Professional Recognition in this School System

A.	Quality and quantity of work done	- 17
B.	Dependability	- 12
C.	Imaginativeness, inventiveness, creativity	- 11
D.	Seniority	- 4
E.	Formal education completed	- 10
F.	Friendship of immediate supervisor	- 7
G.	Friendship of central office	- 12

15. Characteristic Which Should Count Most in Gaining Professional Recognition

		f
A.	Quality and quantity of work done	- 31
B.	Dependability	- 4
C.	Imaginativeness, inventiveness, creativity	- 30
D.	Seniority	- 3
E.	Formal education completed	- 3
F.	Friendship of immediate supervisor	- 1
G.	Friendship of central office	- 1

16. Job Expectation for Five Years From Now

A.	Not in field of education	- 6
B.	Superintendent	- 1
C.	Administrator in central office	- 3
D.	Principal or assistant principal	- 5
E.	Curriculum director, supervisor, or coordinator	- 6
F.	Guidance or psychological service	- 10
G.	Research	- 6
H.	Special services	- 6
I.	Teacher	- 24
J.	Retire within five years	- 9

17. Salary

A.	$ 6,000	to	6,600	- 4
B.	6,601	to	7,200	- 18
C.	7,201	to	7,800	- 12
D.	7,801	to	8,400	- 7
E.	8,401	to	9,000	- 7
F.	9,001	to	9,600	- 9
G.	9,601	to	10,200	- 5
H.	10,201	to	10,800	- 3
I.	over 10,800			- 10

	Almost Always	Frequently	Sometimes	Infrequently	Almost Never
18. Job is exciting and rewarding.	22	20	24	5	4
19. I am just a cog in school machinery.	8	21	21	13	13
20. I feel involved in school activities.	4	28	19	19	7
21. I do things at school I wouldn't do if it were up to me.	3	18	24	17	13
22. I really don't feel satisfied with a lot of things that go on in this school.	8	21	24	14	10
23. I have a lot of influence with my colleagues on educational matters.	1	10	33	18	14

Relative influence of certain groups or individuals on school policy	None	Little	Some	Considerable	Great Deal
24. Local school board	0	6	14	29	28
25. Superintendent	0	4	9	43	21
26. School principal	0	6	22	22	28
27. You yourself	12	21	31	8	5
28. A small group of teachers	4	22	34	11	3
29. Teachers in general	3	26	32	13	2
30. Curriculum personnel	2	12	36	19	5

	None	Little	Some	Considerable	Great Deal
31. Students	22	23	15	13	3
32. Parents	14	29	21	10	1
33. Teacher organizations	4	17	49	11	1
34. Local organizations	12	25	25	10	2
35. Guidance and psychological personnel	6	20	38	8	2
36. Newspapers	6	27	26	9	6
37. P.T.A. (parent-teacher association)	12	39	19	5	0

Ideal relative influence of certain groups or individuals in determining school policy	None	Little	Some	Considerable	Great Deal
38. Local school board	0	12	28	19	16
39. Superintendent	0	4	25	28	17
40. Principal	1	1	10	31	32
41. You	1	3	31	20	11
42. Small group of teachers	4	9	30	23	10
43. Teachers in general	2	1	16	30	25
44. Curriculum personnel	0	1	34	26	13
45. Students	1	12	36	16	9

	None	Little	Some	Considerable	Great Deal
46. Parents	3	22	34	10	6
47. Teacher organizations	1	8	39	23	4
48. Local colleges	9	14	41	9	3
49. Guidance and psychological personnel	1	7	36	22	8
50. Newspapers	20	26	17	11	1
51. P.T.A. (parent-teacher association)	4	23	29	14	4

Classroom Teaching Practices	Don't agree with practice	Never tried it	Considered trying it	Use it occasionally	Use it regularly
52. Pupil participation in lesson planning	5	10	5	44	11
53. Pupil participation in classroom teaching	1	2	9	48	13
54. Pupils work in small learning teams	2	2	4	46	20
55. Role playing	2	6	13	37	17
56. Use of games to aid learning	1	1	2	44	26
57. Pupil evaluation of classroom climate	2	9	11	34	18
58. Pupil participation in developing classroom rules	0	3	9	30	33
59. Involving pupils in community projects	1	15	23	30	5
60. Utilizing local citizens as resource personnel	2	13	29	25	5
61. Pupils as helpers or tutors	0	1	6	36	33
62. Others	2	7	8	22	17

Appendix E

Final Evaluation of Program

Session Number	Session Title	Rank
4	Teacher-Student Interaction (II)	1
1	Value Training	2
6	Communication (I)	3
9	Student Creativity	4
8	Classroom Environment	5
5	Perception	6
7	Communication (II)	7
2	Child Development	8
3	Teacher-Student Interaction (I)	9

1. Did you read the Great Pumkin?

f	Answer
19	Always
13	Sometimes
0	Never

2. How would you rate the Great Pumkin?

A.

f	Answer
22	Useful
4	Not Useful
7	No Response

B.

f	Answer
21	Interesting
0	Not Interesting
12	No Response

C. The feedback information printed every week was helpful?

f	Answer
27	Yes
4	No

3. Materials (i.e., booklets, papers, etc.) were distributed every week. These materials were for the most part:

A.

f	Answer
23	Useful
2	Not Useful
8	No Response

B.

f	Answer
22	Interesting
0	Not Interesting
11	No Response

4. Have you used any of the ideas or materials presented here in your classroom?

f	Answer
32	Yes
0	No

5. Presentation techniques you preferred:

A.

f	Answer
2	Large Groups
29	Small Groups
2	No Response

B.

f	Answer
19	More Audio-visuals
1	Less Audio-visuals
13	No Response

Appendix F - 1

Teachers' Comments

The project could have been improved by having the classes in the morning and at a different location.

Including more demonstrations and providing more time for sharing ideas.

A workshop of this kind should be open to 3rd or 4th grade teachers.

(Improve the project) by asking all grades to participate. Many primary teachers have ideas and comments that could be helpful to upper-grade teachers.

I enjoyed the sessions; however, I do think the primary grade teachers should have been included. The children of the 5th and 6th grades have already been regulated to a certain type of classroom and trying to initiate a creative classroom is harder and somewhat discouraging.

Choosing those teachers truly interested in attending the sessions would have improved the project. This would also have made the discussion groups smaller and more ideal for personal interchange of ideas.

The selection of teachers could have been made voluntary; therefore, the project could have been a success to a greater group of teachers.

Many more interesting things could have come from the teachers present, if time for small group interaction would have been available.

Dividing into small discussion groups with some leadership and direction could have improved the project.

Involving the audience as much as possible could have improved the project.

I feel that at various sessions there could have been more two-way interaction. Also we might have had some students to experiment with.

(Improved) by more interaction between speakers and audience.

More down to earth speakers could have improved the project.

In the beginning, the programs were too much <u>theory</u> and not enough <u>practical</u>.

More time at meetings could be added.

All the project could have been improved if there were opportunities to continue for two or more sessions.

The sessions most enjoyable were ones when the speaker gave techniques or throw-out ideas that a teacher could use.

More applicable sessions, such as the last one--more small group work (ego strengths are expanded)--more concrete suggestions as to <u>how</u> (i.e. ideas and activities as they relate to <u>our</u> teaching situations) (could have improved the project).

Have possibly the same number of meetings but at closer intervals with added excursions to nearby schools or creative classrooms. This would give us time to get to know each other better and to gain from each other.

More teacher participation--sharing their successful projects in creativity (could have improved the project).

Possibly (have) more required projects to be tried in the classroom and results reported to the group.

Even with these stimulating meetings, some teachers remained inhibited and seemed reluctant to air their opinions. You couldn't help this, I know, but perhaps a sensitivity thing at the outset may have loosened some up.

Including administrative personnel for feedback and communication (could have improved the project).

Appendix F - 2

Teachers' Comments

As usual there are those people who seem to be content going "one mile," if it is required, but find it hard to go the second mile "on their own." "Second milers" usually are interesting, inquisitive people.

There were some individuals who did not take this project seriously, and seemed uninspired by the fascinating ideas presented.

The teachers were quite unresponsive and docile for the most part. I anticipated more enthusiasm and desire to exchange philosophies and ideas. How can dull people allow children to be creative.

I believe the teachers were not as open as they could have been. Some of the small group discussions were really not as good as possible.

The teachers were very cooperative and willing to learn or experience anything presented.

Throughout the program we never seemed to get working as a group. Barriers had to be broken with each meeting.

I gained much by getting into small groups and exchanging ideas.

Most of the time I cared less what went on at the seminars. I did not get into it and **take** out of the seminars only what I want. A more open mind may have helped my value judgment, but like the students in my classroom I only learned, accepted and practiced what I wanted or felt interested in.

In my opinion the teachers participated very well in the project.

Teachers should have interacted more than they did.

Some of the teachers amazed me in that they refused to absorb any of this, it seemed. Some even said they wouldn't have time to do these things.

Some of the ideas eluded me (maybe because we're exhausted by 2:30!) but I always had my thinking turned on and got some new ideas and concepts.

Some teachers naturally held back while others helped the program along. I thought participation was, at best, almost nonexistent.

That teachers did and will continue to use the ideas we received in the workshop seems apparent.

I felt many teachers knew what to say--i.e. what would be accepted, but I truly question whether teachers became convinced--especially those who were not convinced prior to these sessions.